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ABSTRACT

This guide to nutrition education can be used as a basis for curriculum development at the school district level, as well as a basis for daily lesson planning by teachers. Designed to involve high school students in gathering information from school and community resources, the guide covers the following topics: (1) meal planning; (2) food consumerism; (3) nutrition and physical fitness; (4) health-related problems; (5) nutrition and reproduction; (6) infant nutrition; (7) hunger and malnutrition in the United States; and (8) careers in nutrition. Appendices contain suggested breakfast and lunch surveys for secondary students. (JD)

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HEALTH EDUCATION
PHYSICAL DIMENSIONS OF HEALTH

**NUTRITION EDUCATION
GRADES 10-12**

U.S. DEPARTMENT OF EDUCATION
NATIONAL INSTITUTE OF EDUCATION

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The University of the State of New York
The State Education Department
Bureau of School Health Education and Services
1981

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NUTRITION EDUCATION
GRADES 10-12

The University of the State of New York/The State Education Department
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FOREWORD

How to Use This Curriculum Guide

This guide is designed to improve nutrition education in two ways:

1. The guide can be used as a *basis* for curriculum development at the school district level. The local curriculum development committee should select those topics, objectives and student activities that are most consistent with local nutrition resources, needs and interests. *These should be expanded further or modified in accordance with student needs and developmental levels.* They can also be arranged in sequential and progressive order to eliminate unnecessary duplication and to avoid gaps in learning.
2. The guide can be used by teachers as a *basis* for daily lesson planning. Topics, objectives and learning experiences should be selected by the teacher (and perhaps by the students) that are most appropriate for the group of students. Appropriateness should be determined by the students' abilities, needs and interests. Build upon what they already know about nutrition.

The guide is arranged by topic, subtopic, terminal objectives, enabling objectives, learner activities, and teacher information. The topics and subtopics provide the teacher with a means for identifying the desired broad area of nutrition. The *terminal objective* indicates the goal to be achieved, while the *enabling objectives* identify the stepping stones for achieving the terminal objective. The learner activities are intended to assist the students in achieving their enabling objectives. Finally, the teacher information section provides the teacher with information needed to facilitate the implementation of the learner activities. Teachers are urged to review the *Teachers' Manual* prior to or in conjunction with lesson planning. See Appendixes of the *Teachers' Manual* for sources of assistance in planning and teaching about nutrition.

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MESSAGE TO TEACHERS

Attitudes about food that directly affect eating patterns on a day-to-day basis are generally well established by the time the students reach adolescence. However, their curiosity about nutrition, especially some of the current food fads, is intense. It is important to aid the student in relating lessons to real life; to reinforce their knowledge and attitudes and help them understand that nutrition is a "living science."

The activities included in this book will involve the students in gathering information from school and community resources. This familiarity developed with resources may make them feel more at ease and more apt to seek reliable information in the present as well as the future. Because of changing lifestyles more and more mothers of school-age children are working outside the home, thus it is imperative that children learn early to accept responsibility of wisely choosing and preparing nutritious foods. High school students need to be taught survival skills for independent living in nutrition as well as other subject areas.

Nutrition education should be practical, laying a sound foundation for future food choices and general eating patterns. As future parents and consumers, this may be the only exposure they have to nutritional facts that can provide them the ability to make intelligent, economical, and healthful decisions. Through these various activities, it is hoped that the students will develop a "notebook" to take with them in life. Thus, this curriculum may have a life-long impact on the total nutrition of the students and future generations.

TEACHING/LEARNING STRATEGIES

TOPIC	MEAL PLANNING
SUB-TOPICS	SNACKING FOREIGN FOODS VEGETARIANISM THE CONTROVERSY OVER NATURAL AND ORGANIC FOODS ADDITIVES
TERMINAL OBJECTIVE	To develop an ability to make wise decisions concerning personal eating habits.
ENABLING OBJECTIVES	The student will be able to: 1. select foods that are both nutritious and practical for snacking needs. 2. identify various factors that influence the selection of food. 3. realize why people become vegetarians and recognize the nutritional implications of the diet. 4. distinguish between natural and organically grown foods and determine if claims for these products are valid. 5. understand the role of additives in our diets and the possible consequences they can have.

TOPIC: Meal Planning

SUB-TOPIC: Snacking

TERMINAL OBJECTIVE: Develop an ability to make wise decisions concerning personal eating habits.

ENABLING OBJECTIVE: Select foods that are both nutritious and practical for snacking needs.

LEARNER ACTIVITIES

1. Have students complete a values grid on 10 Things I Love to Eat and Drink. Fill in 10 favorite foods. In the

N P \$ F S A G R H E

										1.
										2.
										3.
										4.
										5.
										6.
										7.
										8.
										9.
										10.

appropriate column, fill in the letters of the factors from the list below that are true for each food.

N--The food is nutritious

P--One or both of my parents eat it

\$--It is very expensive

F--It is fattening

S--It makes me feel better when I'm sick

A--I usually eat it when I'm alone

G--I usually eat/drink it when I'm with a group

R--I've just started liking it recently

H--I have it on holidays

E--It is fast and easy to buy or prepare

TEACHER INFORMATION

There are various reasons why people eat the foods they do. Geography, heritage, climate, and culture are only a few factors. This exercise should help students realize that people prefer various foods and many factors influence why people eat what they do.

2. Have the students vote on the following statements by shaking their fist with thumb upwards for an affirmative answer or shaking fist with thumb pointing down for a negative answer. How many of you:

- o snack between meals?
- o eat when you get home from school?
- o eat when you're upset?
- o drink soda frequently?
- o eat a balanced diet?
- o eat out at fast food restaurants often?
- o skimp on meals?
- o could walk by a candy store and not buy anything?
- o buy groceries when you're hungry?
- o avoid snacks that aren't nutritious?

Students can then discuss various reasons as to why and when they snack.

3. Survey a supermarket and make a list of as many empty-calorie foods as you can find.

It is important that students realize that all people eat differently whether dealing with snacking or meal planning. It is fun and helpful to understand why and when snacking occurs and in so doing, evaluate and correct any bad snacking habits.

4. Analyze what kinds of foods are offered at school events.

- o What foods are sold?
- o Why do you think people buy these foods?
- o What kinds of foods could be substituted that are nutritious and still meet the needs of the seller?

Students could prepare nutritious snacks and sell them at a school event and donate proceeds to a worthy organization.

5. Organize a nutrition campaign by making posters, writing articles or drawing cartoons in school newspapers. Analyze vending machines at school or in the community. Students can write letters to vending machine companies to encourage them to improve on their products. Students can try to get community support to help their cause.

6. Keep a daily record of everything eaten for one week. Study it to see if it's balanced according to the Basic 4 Food Groups.

- o Did you fall short in any food group?
- o Did you eat more than required in any food group?
- o Did you eat snacks? When?
- o Do you need to improve your eating habits? If so, how?

Foods that are relatively inexpensive to make, quick to prepare, easy to maintain and store are usually sold at school events. Students can look into the possibility of fruit juices, nutritious cookies and cakes, fruit, yogurt, etc., being sold.

Day _____

Meat and Protein	Milk and Dairy	Breads and Cereals	Fruit and Vege.	Other
------------------------	----------------------	--------------------------	-----------------------	-------

Breakfast:					
Snack:					
Lunch:					
Snack:					
Dinner:					
Snack:					
Totals:					

7. Students should make adjustments to the daily food records they kept to make them nutritionally balanced.

8. Cut out pictures of people doing various activities such as walking, running, playing tennis. Include various types of people such as a child, pregnant woman, teen-age boy, or a person who is overweight. Students can describe meals that these people might eat.

Perhaps the students will be low in fruits and vegetables and high in "other." They could modify it by substituting an apple or piece of fruit for something in the group called "other."

People who are active need more calories because they are using up more energy. Children and pregnant women also need more calories because of growth.

TOPIC:

SUB-TOPIC: Foreign Foods

TERMINAL OBJECTIVE:

ENABLING OBJECTIVE: *Identify various factors that influence the selection of food.*

LEARNER ACTIVITIES

1. View filmstrips about various ethnic groups. Discuss the following:
 - o What is culture?
 - o What are some physical factors that influence people in their choice of food?
 - o Can people in other cultures eat nutritious meals?
 - o How does religion affect the food selection process?
 - o How does the family affect these food choices?
 - o List other factors that determine food choices.
2. Each student can select a country that s/he would like to study and prepare a written and oral report on the country's:
 - o Holidays and festivities
 - o Culture
 - o Geography and climate
 - o Foods produced
 - o Typical menus
 - o Imports and exports

TEACHER INFORMATION

American Ethnic Foods. (12 filmstrips with cassettes Available from: Butterick Publishing, 161 Sixth Avenue, New York, N.Y. 10013. 10 min. ea. color 35 mm.

Ethnic foods studied are: Soul Food, Chinese Food, Mexican Food, Native American Food, Italian Food and German Food.

(See pages 31-35 in the *Teacher's Manual*.)

Resources include:

- o Foods of the World Library. Time-Life Books. New York. 1968.
- o School or community library.

3. After researching a specific country, the students can prepare foods from that country. Invite parents to a "Foreign Food Dinner." Students can dress up in costumes similar to those worn in the country they studied.

4. Prepare an "Ethnic Food Guide." Visit local ethnic restaurants in the area. Make a booklet telling about each restaurant. Describe

- o What kind of restaurant it is
- o The atmosphere and decor
- o The prices
- o Service
- o The meals
- o The location
- o The language used on menus

5. Draw a map of the world for use on a flannel board. Students can place symbols of food on the countries where that food is grown.

If there is a print shop in the Industrial Arts program, perhaps the booklets can be printed.

What's To Eat? And Other Questions Kids Ask About Food.
The United States Department of Agriculture Yearbook
1979. See pages 110-113. Available from: Superintendent
of Documents, U.S. Government Printing Office, Washington,
D.C. 20402. Stock number 001-000-04041-3.

TOPIC:

SUB-TOPIC: Vegetarianism

TERMINAL OBJECTIVE:

ENABLING OBJECTIVE: *Realize why people become vegetarians and recognize the nutritional implications of the diet.*

LEARNER ACTIVITIES

1. View filmstrip, "Vegetarianism In a Nutshell."
 - o What reasons were given for becoming a vegetarian?
 - o What types of vegetarians are there?
 - o Where do vegetarians obtain protein?
2. Research individual reasons for becoming vegetarian. Students can share their information with the class.
 - o Research medical reasons for becoming a vegetarian.
 - o Plan a vegetarian menu for one week and a menu that includes meat. Compare the costs of each.
 - o Read Diet For A Small Planet and present ecological reasons.
 - o Contact a social studies teacher for information concerning countries where people don't eat meat. Study these reasons.
 - o Research why people don't believe in killing animals. Study the practices of agribusiness.

TEACHER INFORMATION

Available from: The Polished Apple, 3742 Seahorn Drive, Malibu, California 90265.

"Vegetarianism", a supplement from the Life and Health Journal is available from Review and Herald Publishing Association, Washington, D.C. or by contacting local Seventh Day Adventist Church.

Diet For A Small Planet by Frances Moore Lappe. Available from: Ballantine Books, Inc., New York, NY. 1975.

Chickens are debeaked and pigs have their tails cut off because they get irritated in such close quarters. See "Animals," Vegetarian Times. James B. Mason, Issue #36: pages 52-53. March 1980.

3. Invite a meat inspector to talk to the class.
Have sample questions prepared before he comes.

4. Have a panel discussion on meat-eating versus
vegetarianism.

5. Prepare some meatless entrees that can be used
by people who eat meat but may want to cut down
as well as by those who are vegetarians. In-
clude new recipes that are not part of the
student's diet. Experiment with:

- o tofu
- o beans/rice
- o nuts/oats
- o pasta/cheese
- o "meatless" meat products (meat analogs)

According to some research, the meat inspector is
expected to "do the impossible" in terms of checking
the animals. Perhaps a meat inspector could shed some
light on this situation and describe some of the con-
ditions that exist.

There are many excellent vegetarian cookbooks. Visit
the local bookstore. A few are:

- o Ewald, Ellen B. Recipes For a Small Planet.
Ballantine Books, Inc. New York, NY. 1975.
- o Katzen, Mollie. Moosewood Cookbook. Ten Speed
Press. Berkeley, CA. 1977.
- o McGruter, Patricia Gaddis. The Great American
Tofu Cookbook. Autumn Press. Brookline, MA. 1979.
- o Thomas, Anna. The Vegetarian Epicure. Alfred A.
Knopf, Inc. New York, NY. 1978.

TOPIC:

SUB-TOPIC: The Controversy Over Natural and Organic Foods

TERMINAL OBJECTIVE:

ENABLING OBJECTIVE: *Distinguish between natural and organically grown foods and determine if claims for these products are valid.*

LEARNER ACTIVITIES	TEACHER INFORMATION
1. Define natural and organic. Identify foods that are considered "natural" or "organic." 2. Visit a health food store and a grocery store. Choose several items that can be found in both. Compare ingredients and cost. - o "natural" peanut butter - o yogurt - o whole wheat flour - o nuts - o tofu - o dried fruit - o granola	Two resources are: - o "Organic and Conventional Farming Compared." Report 84. Available from: Counsel for Agricultural Science and Technology, 250 Memorial Union, Ames, Iowa 50011. - o "Report and Recommendations on Organic Farming." July, 1980. Available from: U.S. Government Printing Office, Washington, D.C. 20402.

3. Research how organic and inorganic fertilizers are used by contacting Cooperative Extension for information.

- o How are they used?
- o Where do they come from?
- o What are the differences between them?
- o Is either one superior?

4. Invite a specialist from the Regional Extension Service to discuss additives, pesticides and herbicides. Discuss:

- o Would the food supply be decreased with use of organic pesticides, herbicides, etc.
- o Would the cost of food be increased?
- o What is the practicality of organic farming for commercial use?
- o Why are industries reluctant to develop new products for use in organic farming?

5. Visit an organic farm to see various techniques being used.

- o Could these techniques be used by the individual who gardens?
- o Are these methods more expensive?
- o Do these methods take more time for the farmer or gardener?
- o What types of pesticides/herbicides are being used?

- o It is not practical to grow foods organically for use on commercial farms. More manpower is needed which costs money and raises food prices.
- o Without the use of additives and pesticides, the food supply would be decreased. It is important to realize that not all additives are harmful and many are beneficial.
- o Industry is reluctant to develop new pesticides and herbicides. A great deal of testing must be done that can cost millions of dollars for the companies involved. They don't have an extensive clientele to buy these products.

Organic farming (avoiding use of inorganic additives, pesticides, and herbicides) is a commendable ideal to strive for. Many of these methods are great for the home gardener but are not practical for commercial use.

TOPIC:

SUB-TOPIC: Additives

TERMINAL OBJECTIVE:

ENABLING OBJECTIVE: *Understand the role of additives in our diets and the possible consequences they can have.*

LEARNER ACTIVITIES	TEACHER INFORMATION
1. The use of additives in food is very controversial. Students can write to various organizations for information on the use of additives. Write to: - o United States Department of Agriculture - o Federal Drug Administration - o Cooperative Extension - o food manufacturers - o consumer groups 2. View filmstrip, "Warning: Eating May Be Hazardous To Your Health." It covers: - o food safety - o food sanitation - o additives 3. Divide additives into various categories based on function. - o Using <u>A Consumer's Dictionary of Food Additives</u>, the students can group these additives and make up a card game. The concepts of "Go Fish" or "Old Maid" or "Concentration" may be useful.	An excellent source is the Center for Science in the Public Interest, 1346 Connecticut Avenue, Washington, D.C. 20036. The filmstrip is available through Current Affairs Films 24 Danbury Road, Wilton, Conn. 06897. Students should identify several of the most commonly used additives to: - o improve color - o improve texture - o improve flavor

4. Define fortification and enrichment. Have students discuss the following ideas:

- o Should candy bars and junk foods be fortified with nutrients?
- o What implications does fortification hold for use in underdeveloped countries?
- o Is it more expensive to fortify or enrich food?

5. Compare the nutrient values of whole grain versus white flour.

- o Which is more nutritious?
- o Is either one "bad" for you?

6. Prepare two types of food to compare shelf life. Use a store bought product which contains additives and a product which doesn't contain additives.

- o Which one spoiled faster?
- o How does spoilage affect our food supply?
- o Are additives useful in keeping foods fresh?

o maintain quality and increase storage life

o improve nutritive quality.

A Consumer's Dictionary of Food Additives by Ruth Winter. Available from Crown Publishers, Inc. 1 Park Ave., New York, N.Y. 10016.

Enrichment restores some of the nutrients lost during the processing of a food.

Fortification is adding a nutrient that was not originally present.

(For further explanation see p. 77 of *Teacher's Manual*.)

Whole wheat flour is higher in several nutrients (protein, phosphorus, calcium, magnesium, and fiber) than white enriched flour.

This activity should demonstrate a positive effect of additives. Without additives, food would spoil faster resulting in less food available at a higher cost.

7. Have students read about the controversy over the Feingold Diet.

- o What is hyperactivity?
- o What is the relationship between chemical additives such as artificial food colors and flavors and hyperactivity in children?
- o Describe the Feingold diet.
- o What is the basis for the controversy over the Feingold Diet?

8. Research the role of sugar substitutes in the diet?

- o Why are sugar substitutes needed?
- o Name some noncaloric sweeteners and determine their sources.
- o Name some caloric sweeteners that serve as sugar substitutes. Where do they come from?
- o Survey products in the grocery store that contain sugar substitutes.

9. Students should write an essay on a topic of their own choice related to additives and share with the class.

"The National Advisory Committee on Hyperkinesia and Food Additives," Final Report to the Nutrition Foundation. Available from: Office of Education and Public Affairs, 888 Seventeenth Street, N.W., Washington, D.C. 20006.

The Food That Stays: An Update on Nutrition, Diet, Sugar, and Caries. Available from: Medcom, Inc., 1633 Broadway, New York, New York 10019.

Sugar substitutes have been sought wherever sucrose intake must be restricted for any reason. These substitutes are subdivided into caloric and noncaloric agents. Caloric sweeteners (corn syrup, corn sugar, sorbitol and xylitol) are metabolized as a source of energy by the body. Non-caloric sweeteners (saccharin, cyclamates, and dihydrochalcones derived from citrus fruits) are excreted essentially unchanged in the urine and feces.

Some suggestions:

- o We're going to die anyway so it doesn't matter what we eat.
- o Food companies are concerned with profits rather than safety.
- o The F.D.A. should have more/less control over the use of additives.
- o The consumer makes the difference in determining what industry will provide.

TOPIC

FOOD CONSUMERISM

SUB-TOPICS

CONVENIENCE FOODS

FOOD SANITATION

FOOD WASTE

FAD DIETS

MEGAVITAMINS

TERMINAL OBJECTIVE

To develop an ability to make wise decisions concerning personal nutritional needs.

ENABLING OBJECTIVES

The student will be able to:

1. identify the advantages and disadvantages of convenience foods.
2. understand the relationship between food contamination and disease and explain the basic principles of sanitary food preparation.
3. develop an awareness of the impact that food waste has on the environment and the economy.
4. develop an informed attitude about the use of fad dieting to control weight.
5. be aware of the controversies surrounding megavitamin therapy.

TOPIC: Food Consumerism

SUB-TOPIC: Convenience Foods

TERMINAL OBJECTIVE: *To develop an ability to make wise decisions concerning personal nutritional needs.*

ENABLING OBJECTIVE: *To identify the advantages and disadvantages of convenience foods.*

LEARNER ACTIVITIES	TEACHER INFORMATION
1. Have students answer the following questions: - o What are convenience foods? - o How have they been processed? - o What are the advantages of convenience foods? - o What are the disadvantages of convenience foods?	Processing methods include: - o milling - o washing - o trimming - o chopping - o polishing - o cleaning - o packaging - o pre-cooking - o freezing - o canning
2. Have students prepare a list of foods that have been processed in some way and are used on a regular basis at home. - o Are all considered convenience foods by students? - o How would family life change if these foods were not available?	If any of the above methods are used, then a food is considered a convenience food [e.g., frozen/canned vegetables (have been washed, cut, and trimmed) T.V. dinners, canned soups, packaged noodles, etc.]
3. Have students question parents and grandparents: - o How were foods prepared when they were young? - o How much of each day was spent on food preparation? - o How did the time factor affect family routine? - o Which foods were prepared from scratch that we now produce from a package?	Most parents and grandparents spent more of their daily routine in food preparation. Many foods prepared from "scratch" are available today in more convenient forms. Cakes, breads, pudding, and rolls are a few examples.

4. Divide class into 2 groups and have one group prepare a food from a convenience package and the other group prepare the same food from scratch. Compare:

- o ingredient cost
- o time of preparation
- o taste
- o appearance

5. Have students discuss the pros/cons of several fast food restaurants.

- o What part do they play in American lifestyle?
- o Do they offer nutritious meals?
- o Are the meals high in calories? cholesterol? salt? sugar?
- o How could you make a food from a fast food meal more nutritious?
- o Is the food more expensive to buy at these restaurants than it would be if you made it at home?
- o What changes would you have to make in your lifestyle if you had to give up foods from fast food restaurants?

Foods that could be used in this comparison are:

- o blueberry muffins
- o spaghetti and sauce
- o cakes
- o cookies

TOPIC:

SUB-TOPIC: Food Sanitation

TERMINAL OBJECTIVE:

ENABLING OBJECTIVE: *To understand the relationship between food contamination and disease and explain the basic principles of sanitary food preparation.*

LEARNER ACTIVITIES	TEACHER INFORMATION										
1. Invite a representative from a local health department to speak to the class about food sanitation. - o What is a definition of food sanitation? - o What are the potential hazards involved in keeping food safe to eat? - o What kinds of sanitation practices does the law require? 2. Have students brainstorm a list of the food sections in a supermarket. Determine how a few foods from each section should be properly stored. - o Make a food storage chart that includes columns for food type, proper storage area, storage temperature, safe storage time.	Cooperative Extension may be able to provide a resource person and materials for this topic. Sanitation keeps foods free from harmful germs and dirt so that it is safe to eat. This means keeping food and equipment clean and storing and cooking food properly. The supermarket food sections include: <table><tbody><tr><td>o canned foods</td><td>o pastas</td></tr><tr><td>o frozen foods</td><td>o meats</td></tr><tr><td>o produce</td><td>o dairy products</td></tr><tr><td>o condiments</td><td>o staples</td></tr><tr><td>o dry mixes</td><td>o beverages</td></tr></tbody></table>	o canned foods	o pastas	o frozen foods	o meats	o produce	o dairy products	o condiments	o staples	o dry mixes	o beverages
o canned foods	o pastas										
o frozen foods	o meats										
o produce	o dairy products										
o condiments	o staples										
o dry mixes	o beverages										

3. Have students plan a display of types of food storage containers and wrappings.

- o List the advantages and disadvantages of each type.

4. Have students visit the kitchen of a restaurant, fast food place, snack bar, or cafeteria and report on the conditions they observe. Make a checklist of things to look for.

- o Do employees look clean and neat?
- o Are floors, walls, tables, linens clean?
- o Are the restrooms clean?
- o How are equipment and utensils stored?
- o What procedures are used to clean equipment and serving dishes?
- o Do employees practice sanitary handling of food?
- o Is there a state inspection sticker visible?

Some food storage containers and wrappings include:

- o plastic, airtight containers
- o plastic bags
- o aluminum foil
- o plastic wrap
- o wax paper

Have students call ahead to make an appointment for a visit.

5. Have students research types of food poisoning, their causes and symptoms.

- o Make posters to illustrate this information.

6. Have each student interview someone who has had a case of food poisoning.

- o What caused the food poisoning?

- o What were the symptoms?

- o How was the illness treated?

- o How does the person now feel about eating the food that caused the illness?

Resource: "Food Poisoning;" New York State Health Department, Tower Building, Empire State Plaza, Albany, New York, 12234.

An alternative activity would be to have students re-search back newspapers for accounts of food poisoning.

TOPIC:

SUB-TOPIC: Food Waste

TERMINAL OBJECTIVE:

ENABLING OBJECTIVE: *To develop an awareness of the impact that food waste has on the environment and the economy.*

LEARNER ACTIVITIES	TEACHER INFORMATION
1. Show the class "Trash Tells A Tale." Have each student write a description of his/her reaction to the filmstrip. Share feelings with the class. 2. Have students choose a restaurant, snack bar, or fast food establishment to visit. Interview the manager about food waste. - o What size portions are usually served? - o How much plate waste is observed? - o What types of food are thrown away by patrons? - o What types of food must be thrown away due to spoilage? - o What have you done to reduce waste? - o How much does food waste cost?	This slide/cassette can be obtained from Visual Communications, Roberts Hall, Cornell University, Ithaca, New York 14853.

3. Have students visit a variety of grocery store operations. Interview the manager.

- o What types of groceries are highly perishable?
- o What storage problems result in food waste?
- o What methods are used to help reduce waste?
- o How much does food waste cost?
- o How is food waste paid for?

Do a comparison study of the food waste in the different types of markets.

4. Have the class plan a food waste survey to measure foods thrown away in the school cafeteria. Divide students into pairs to record:

- o amount of milk thrown away
- o number of whole servings of foods thrown away

Some grocery store operations include chain supermarkets, independent groceries, convenience food stores, neighborhood groceries, specialty groceries.

Some problems encountered by grocers include:

- o perishability of produce
- o mishandling of products by consumers and store personnel
- o breakage of containers
- o failure of storage equipment (e.g., cooling, freezing)

Develop a chart for students to use for the comparison study.

Resource: "A Case of Waste," Level 6, "Nutrition Comes Alive," available for loan from your local BOCES at no cost.

Pour wasted milk into empty gallon containers for easy measuring.

Separate pieces of fruit, slices of bread, cookies, etc. into containers. Have students use rubber or plastic gloves for this activity.

5. Have students interview other students in the school cafeteria to determine why foods are thrown away.

- o What school foods do they like? Dislike?
- o Are the portions served too large? Too small?
- o What foods would you like to see added to the school cafeteria menu?
- o How do you feel about the cafeteria atmosphere? How can the atmosphere be improved?

6. Have the class devise a plan to form a school food committee for the purpose of improving the cafeteria atmosphere, increasing school lunch participation, and decreasing food waste.

- o Include on the committee students, teachers, administrators, school food service personnel, parents, custodians, etc.
- o Schedule meetings to formulate plans for accomplishing committee goals.

Compile the results of student interviews to present to the school lunch director.

"Little Things Mean a Lot" and "Socks on an Octopus" are two films that describe how to form school food committees. Information on how to obtain these films is available from EPSIS, The University of the State of New York, The State Education Department, Albany, New York 12234.

TOPIC:

SUB-TOPIC: Fad Diets

TERMINAL OBJECTIVE:

ENABLING OBJECTIVE: *To develop an informed attitude about the use of fad dieting to control weight.*

LEARNER ACTIVITIES	TEACHER INFORMATION
1. Have students break up into small groups and brainstorm to develop a list of various fads. After 5 minutes, students should put each list on the board. - o Do you practice any of these fads? - o Did your parents practice any of them? - o Are any related to food? 2. After identifying food fads, have students try to write a definition of a food fad. 3. Have students identify a list of criteria to be used to analyze diet advertisements for nutritional soundness.	A fad is a fashion, behavior, or speech that is practiced for a brief period of time. A food fad is an eating behavior that may or may not be nutritionally sound and its popularity is short-lived. Use the learning package "Fad Dieting? A Portfolio of Resource Materials" by Martha C. Mapes. Available from: Distribution Center C, 7 Research Park, Cornell University, Ithaca, N.Y. 14850. (Payment must accompany order. Make check payable to Cornell University for \$3.18.) Some of the information provided includes the following questions: - o Is the diet realistic? - o Is it nutritionally balanced? - o Should you consult your doctor? - o Are diet pills used for weight loss?

4. Have students select advertisements dealing with dieting from newspapers and magazines. Analyze the diets according to criteria developed in Activity 3.

- o Underline in red any claims that are nutritionally sound.
- o Underline in black any claims that are nutritionally unsound.
- o Underline in green any reference to miracle drugs or pills.
- o Circle any promises of fast results.
- o If cost information is given, write total cost per week in the margin.

- o Does it eliminate any food groups?
- o Is exercise recommended?
- o Does it claim weight loss should exceed 2 pounds per week?
- o Are snacks allowed? Are they healthful?

Use this activity to help students become more critical of claims made in diet advertisements. By marking claims, students should be able to determine the percentage of sound and unsound advice.

5. Have students question friends about their dieting methods.

- o What foods were eaten?
- o What foods were omitted?
- o Was exercise included?
- o How long were you on the diet?
- o How long did the weight stay off?

Using answers to the above questions, compile information in chart form.

- o What conclusions can be drawn from this survey?

Methods Used	Degree of Success Short Term	Success Long Term	Nutritionally Sound? Yes	No	List any food groups limited or omitted

6. Have students divide into groups to solve the following case:

Henry wants to lose 24 pounds to be at his recommended weight before he buys a new suit. He presently uses 2500 calories in daily activities. Assuming he will stay at the same activity rate, plan a diet for one week that could be used to help him reach his goal.

- o Plan a balanced diet for one week at which Henry would maintain his present weight.
- o How much time should Henry plan to take to lose 24 pounds?
- o How many calories need to be decreased per day?
- o Modify the original diet so Henry can lose his desired amount of weight in the recommended amount of time.

7. Discuss:

- o To what degree do you think social or peer pressure influences people to go on crash or starvation diets to reduce?
- o Is the wispy model-like figure a very real possibility for most to achieve? Is it desirable?
- o What influences do TV and magazine advertisements have on student dieting?

The following steps may be used to plan a weight reducing diet:

1. Decide what a regular diet for this person would be. (For Henry, in this example, develop a 2500 calorie diet.)
2. Calculate how long it will take to lose 24 pounds.
 - o At two pounds per week (this is the recommended weight loss per week) it will take a minimum of 12 weeks to lose 24 pounds.
3. Calculate how many calories must be lost per day.
 - o There are 3500 calories in one pound. Therefore, to lose two pounds per week one must lose 7000 calories per week. This averages out to 1000 calories per day.
4. Reduce diet in step 1 to a 1500 calorie diet making sure it contains foods from all four food groups.

8. Find a picture of Venus de Milo, regarded as the ideal of feminine beauty in her time.

o Would the ideal today be the same?

o Compare with pictures of models from some popular fashion magazines.

This idea could be a theme for a bulletin board.

TOPIC:

SUB-TOPIC: Megavitamins

TERMINAL OBJECTIVE:

ENABLING OBJECTIVE: *To be aware of the controversies surrounding megavitamin therapy.*

LEARNER ACTIVITIES

1. From the dictionary, have students:
 - o define the word "vitamin"
 - o define the prefix "mega"
2. Have students locate ads in magazines, newspapers, T.V. or local stores that claim to make use of megavitamin therapy or vitamins to increase health.
 - o Cut out or write down a description of the ads.
 - o Where was the ad seen? (What type of magazine? T.V. show? store?)
 - o Is the sponsor reputable (e.g., the newspaper or magazine carrying the ad)?
 - o Do the magazines that print the ads also support them?
 - o Do the ads that make use of vitamins or megavitamin therapy sound like a miracle cure?

TEACHER INFORMATION

A vitamin is a substance necessary in small quantities to maintain normal metabolism and health.

Mega means large, great or 1,000,000 times a given unit.

These two terms seem to contradict each other when combined to make a single word.

Megavitamin therapy refers to doctor or self-prescribed administration of nutrients normally taken in small quantities, at several doses times the RDA for a specific therapeutic or preventive purpose or for the purpose of optimizing health.

3. Analyze the ads selected for the above activity. Determine if the recommended amount of vitamins is excessive compared to the Recommended Dietary Allowance.

4. Have students check vitamin bottles at home or in the store.

- o Do any manufacturers claim to use megavitamin therapy?

- o Are any vitamins or minerals supplied in excess of the Recommended Dietary Allowances?

- o Have students write to the manufacturer to request an explanation of their use of megavitamin therapy or excess amounts.

5. Have students research how the megavitamin therapy theory was established.

6. Invite a nutritionist to speak to the class about the toxicity of large doses of vitamins.

7. Have students write to the American Psychiatric Association to ask for their stance on megavitamin therapy.

A table of Recommended Dietary Allowances can be found in any general nutrition text.

This activity should help the student recognize the use of megavitamin therapy even when a product is not labeled for such use.

Since 1890 one after another vitamin has been shown to cure deficiency diseases. The belief has arisen that if some is good, more is better.

Resource: "An In-depth View: The Issue of Megavitamins and Human Behavior," Professional Perspectives, Division of Nutritional Sciences, Cornell University, Ithaca, New York. December, 1979.

Call the local health department or the dietetics department of a hospital to find a nutritionist.

Information is available from the American Psychiatric Association, 1700 18th Street, N.W., Washington, D.C. 20009.

TOPIC

NUTRITION AND PHYSICAL FITNESS

SUB-TOPIC

MAINTAINING PHYSICAL FITNESS

NUTRITIONAL NEEDS OF THE ATHLETE

TERMINAL OBJECTIVE

To conclude that establishing and maintaining good exercise and nutrition habits as a lifelong goal will maintain physical fitness and wellness.

ENABLING OBJECTIVES

The student will be able to:

1. recognize that a nutritionally adequate diet and exercise are major contributing factors to physical fitness and health.
2. conclude that a basic condition necessary to maintain top physical efficiency and performance is optimal nutrition.

TOPIC: Nutrition and Physical Fitness**SUB-TOPIC: Maintaining Physical Fitness**

TERMINAL OBJECTIVE: *To conclude that establishing and maintaining good exercise and nutrition habits as a lifelong goal will maintain physical fitness and wellness.*

ENABLING OBJECTIVE: *To recognize that a nutritionally adequate diet and exercise are major contributing factors to physical fitness and health.*

LEARNER ACTIVITIES	TEACHER INFORMATION
1. Have students answer the following questions: - o What is physical fitness? - o What factors in our modern society contribute to poor physical fitness? - o What are considered to be some of the diseases of a "civilized," industrialized society? - o How could exercise contribute to proper nutrition? - o At what age(s) in a person's life is physical fitness important? - o How does exercise and nutrition promote physical fitness and wellness? - o Comment on this statement: If a person needs and takes in 2500 calories a day, he is properly nourished. Discuss the above questions and answer: - o Did any misconceptions or disagreements arise during the discussion? - o How many believe the above factors influence their lives and habits?	In our industrialized society, many individuals have become more sedentary. A decline in physical activities and an overabundant food supply have contributed to reduced physical fitness. Exercise may increase a person's need for calories. It is difficult to assure nutritional adequacy when the daily caloric intake is below 2,000. Essential nutrients, especially vitamins and minerals, are found in many different foods but in small amounts. An adequate amount of nutrients and exercise protects against diseases (heart attack, cancer, diabetes, obesity, etc.). (An excellent reference booklet for this topic, including information, current articles and almost 100 annotations in the bibliography, is "Nutrition and Physical Fitness: A Review," The University of the State of New York, State Education Department, Educational Programs and Studies Information Service-EPSIS, 1980.)

2. Review a meal pattern for a well balanced diet.

- o Have students assess a classmate's dietary habits and provide "nutritional counseling."

3. Discuss the role of calories in the diet.

- o What are calories needed for?
- o Describe foods that have many calories.
- o Describe foods high in calories that are also high in vitamins and minerals.
- o Describe foods high in calories that are low in vitamins and minerals.
- o Which of these foods would help the body work more efficiently?
- o Which foods do you/would you rather eat?

4. Assess current life styles that may lead to poor nutrition and physical fitness. Have the class describe a family of four: children ages 10 and 14, and mother and father working outside the home. Include accounts of their daily life that contribute to poor nutrition and physical fitness.

- o Design a workable plan for this family to help them eat more nutritiously.
- o Depending on the type of activity already described, decide how much and what type of exercise is needed for each person.
- o Research the role of exercise and nutrition in daily life and write information to convince this family of its importance.

(See page 33 of the *Teachers' Manual*.)

Resource: "Ideas For Better Eating" available from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.

A family's eating and lifestyle patterns can often lead to poor physical fitness. Families that, as a pattern, eat poorly planned meals, excessively high in meats, starches and fats and low in fruits and vegetables, may be overweight. Habits such as overfilling plates then insisting they be cleaned, giving rewards of food etc., add to this propensity. Work being done by machines, the advent of the car, and television, the tension built up by lessened physical activity, lead to poor physical fitness. (See Living Nutrition, Stare and McWilliams John Wiley and Sons 1977 p. 87-88.

See recommendations of the American Dietetic Association in their "Nutrition and Fitness" article published in the Journal of the American Dietetic Association, Volume 76, May, 1980.

5. Study your own (or someone else's) extended family.

- o Describe the wellness of family members.
- o Describe any persons that have persistent or serious illness or disease.
- o Can you relate any of these findings to the effort expended on physical fitness?
- o How have people "aged" in this family?
- o Can you relate the rate of aging to nutrition and physical fitness?
- o Have each student find one reference in a text or periodical on aging and physical fitness to share with the class.

6. Have students develop a list of diseases that may be avoided by the use of a life long physical fitness program.

- o Explain why these conditions can be avoided by exercise.
- o What types of exercise can be employed?
- o Describe at what age and in what state of physical wellness a person must be in to engage in these exercises.

"...aging begins early in life and procedures to alter the rate of decline need to begin early. Some people are "older" in body at 50 years...than others are at 80."* Those who retain their youthful vigor in later years are active physically and mentally all their lives.

*Nutrition and Physical Fitness, Briggs and Calloway
W.B. Saunders Co. 1979. p. 466.

Use chart in Living Nutrition, Stare and McWilliams. John Wiley and Sons 1977. p. 90.

See "Controversy 4" in Nutrition Concepts and Controversies, Hamilton and Whitney. West Publishing Co. 1979. p. 105-108.

7. Have students write an assessment of their own nutritional habits and physical activities.
 - o In what areas are they exemplary?
 - o In what areas are improvements needed?
8. Have students write a plan for their own physical fitness.
 - o Make changes as compatible with your current life style as possible.
 - o Choose one habit to change and make a commitment to work on it for one week.
9. Have students write an essay: "How a Life-time Physical Fitness Plan Can Affect My Life and the Lives of My Present and Future Family?"

"No one who attempts too many changes (in dietary and physical activity habits) at one time is successful. Set...priorities: pick one trouble area that you think you can handle, start with that, practice until it is habitual and automatic."

From Nutrition Concepts and Controversies, p. 201

TOPIC:

SUB-TOPIC: Nutritional Needs of the Athlete

TERMINAL OBJECTIVE:

ENABLING OBJECTIVE: *To conclude that a basic condition necessary to maintain top physical efficiency and performance is optimal nutrition.*

LEARNER ACTIVITIES	TEACHER INFORMATION
1. Have students interview coaches and athletes in their school or from teams in their locality. - o Do they ascribe to certain kinds of diets? - o Are they concerned with weight loss or weight gain? - o What are other problems of the athlete? - o Should players have pregame meals; when and of what foods? - o What type of foods and/or fluids may be ingested during an athletic event? - o What foods or supplements do they believe are necessary for athletes? - o What foods or liquids should be avoided by athletes? - o Where do coaches and athletes get their nutritional information?	Use the learner activity interview questions to familiarize students with special nutritional problems of the athlete. An excellent resource is <u>Handbook for the Young Athlete</u>, Nathan J. Smith and others, Bull Publishing Company. Palo Alto 1978.

2. Have the class list what the coaches or athletes believed to be their major nutritional concerns. Also list nutritional practices and beliefs.

Coaches' and/or athletes' nutritional concerns:

- o Weight loss or gain to meet specific weights for wrestling, gymnastics, boxing, crew, etc.
- o Maintaining weight.
- o Attaining optimum efficiency in competition.
- o Pregame meals - when and what foods.
- o Should vitamins be used?
- o What is a good diet for athletes?
- o Should liquids be taken during athletic events?

Some nutritional practices and beliefs:

- o Never eat before a game.
- o Consume only liquids before a game.
- o Do not eat dairy products.
- o Use a diet high in protein.
- o Do not take fluids during long-term events.
- o Make health foods (wheat germ, etc) a part of the diet.
- o Athletes should consume drinks containing sodium, potassium and carbohydrate during extended physical activity. (e.g. orange juice, apricot nectar, pineapple juice)

3. Have students read "Nutrition and Athletic Performance."

- o Why is it difficult to tell what the effect of a single nutrient may have on physical performance?
- o What nutrients would an optimum diet for athletes include?
- o Why do athletes in training require greater calorie intake?
- o When calorie intake increases, should the amounts of specific foods increase?
- o What is the function of protein in the body?
- o Should protein foods be greatly increased for athletes? Explain.
- o What is glycogen?
- o How is carbohydrate used in strenuous exercise?
- o What relationship do glycogen stores have to performance?
- o What may be a problem with a carbohydrate-loading diet?
- o Why don't researchers advocate vitamin supplements for athletes?
- o Why should salt intake be increased for athletes?
- o How is water used in the body?
- o Should water intake during athletic competition be limited?

A copy of this article can be found in "Nutrition and Physical Fitness: A Review" University of the State of New York, The State Education Department, Education Programs and Studies Information Service - EPSIS, 1980, pp 88-91, or in Dairy Council Digest, National Dairy Council (Vol. 46 No. 2, March-April 1975).

- o Why should pregame meals be taken at least three hours before an event?
 - o In what type of sports is a starvation diet practiced? Why is it an unsound practice?
 - o What kinds of information should coaches be discouraged from giving to their athletes?
4. Divide students into groups A, B and C. Assign each group one of the following for the purpose of defining a carbohydrate-loading diet and explaining what the diet and regimen include.

Group A. Define the following then explain how they relate to the purpose of the above diet?

- o glucose
- o carbohydrates
- o glycogen
- o glycogen depletion

Carbohydrates, or sugars and starches, are absorbed into the bloodstream when they have been broken down by body digestive processes into glucose. Glucose is stored in muscle cells in the form of glycogen. Studies have shown that during exercise (especially repeated bursts of intense activity or long periods of moderate exertion like distance running or cross country skiing) glycogen stores are depleted. Studies have also shown a direct relationship between the amount of glycogen stored in a muscle and the amount of time it can work. It has been concluded from this that the greater the glycogen stores, the longer an athlete would be able to participate in a lengthy competition. For more detailed information on how glycogen works see Nutrition and Physical Fitness, Briggs and Calloway W.B. Saunders Co. 1979, pp 532-534 and "Athletic Training - And How Diet Affects It," D.F. Hanley M.D. Nutrition Today magazine, P.O. Box 1829, Annapolis, Maryland 21404 (Nov/Dec 1979). A copy of this article can also be found in Nutrition and Physical Fitness: A Review (University of the State of New York, The State Education Department, Educational Programs and Studies Information Service - EPSIS, 1980) pp 83-87.

Group B. Describe the three main steps in the carbohydrate loading diet.

Group C. Develop examples of diets that can be used for the various stages of the carbohydrate-loading diet.

Have each group of students report findings to class.

5. Have students give proof as to why or why not food fads promoted by some coaches and athletes are nutritionally sound.

- o Football players should eat steak on the morning of game days.
- o Swimmers should take honey before each contest.
- o A high protein diet is a must for most athletes.
- o Wheat germ oil and other "health foods" will ensure optimum athletic performance.
- o Coaches' orders about diet and nutrition should be strictly followed.
- o Starvation diets for wrestlers in training will help in performance.
- o One large meal a day, high in protein, will ensure good athletic performance.

A glycogen storage regimen:

- o A week before the event exhaust the needed muscles to deplete glycogen stores.
- o For the next three days eat a diet low in carbohydrate and high in protein and fats to keep the glycogen stores low.
- o For several days before the event add large quantities of carbohydrate to the diet while protein and fat levels are kept at the normally recommended level.

Meal patterns and food examples for this diet can be found in Nutrition and Physical Fitness, Briggs and Calloway.

Students should have this information from their previous study of nutrition and from information obtained on this topic, particularly from Activity 3.

Use articles and information in the booklet, "Nutrition and Physical Fitness: A Review," the University of the State of New York, The State Education Department, Education Programs and Studies Information Service - EPSIS, 1980), and Nutrition Concepts and Controversies, pp 144-148.

6. Have students develop a guide on nutrition that they may distribute to athletes and coaches in their school. It may include:

- o purpose of guide
- o good nutrition and why it is important
- o special nutritional needs of the athlete
- o list of fallacies and facts.
- o special diets for athletes.

7. Have students set up a special "workshop" or information exchange session for interested athletes and coaches.

Unfortunately, much of what is learned in the classroom about nutrition stays there. This should be an opportunity for students to work together creatively on a project that can help the athletes in their school. At the same time, it will reinforce their knowledge and attitudes, and help them understand that nutrition is a "living" science.

Suggestions for workshop format:

- o pretest athletes and coaches using a list of fads, then discuss nutrition facts.
- o formal presentation by students.
- o informational handouts developed by students or gathered from other sources.
- o individual or small group nutrition "counseling" sessions developed for different types of athletes.
- o question and answer time.

TOPIC

SUB-TOPICS

HEALTH RELATED PROBLEMS

ACNE

FOOD ALLERGIES

DENTAL PROBLEMS

OBESITY

STRESS

ANOREXIA NERVOSA

CANCER

ATHEROSCLEROSIS AND CORONARY HEART DISEASE

TERMINAL OBJECTIVE

ENABLING OBJECTIVES

To recognize the relationship between nutrition and health problems.

The student will be able to:

1. become aware of the causes of acne and its treatments.
2. identify food allergies, their physical manifestations, recommended treatments, and their prevention.
3. list factors that cause tooth decay and analyze individual diets according to those factors.
4. identify characteristics, health problems, and alternative diets associated with an overweight person.
5. become aware of how stress affects nutritional status.
6. list characteristics, nutritional damage, and psychological causes of anorexia nervosa.
7. identify nutritional factors related to cancer and evaluate diets in relation to these factors.
8. identify risk factors and dietary characteristics associated with atherosclerosis and coronary heart problems.

TOPIC: Health Related Problems

SUB-TOPIC: Acne

TERMINAL OBJECTIVE: To recognize the relationship between nutrition and health problems.

ENABLING OBJECTIVE: To become aware of the cause of acne and its treatments.

LEARNER ACTIVITIES	TEACHER INFORMATION
1. Pretest the students with the following true-false questions:	
1. Eating greasy foods will cause acne problems.	<u>False.</u> Grease in foods is not transported to the skin. Oil on the skin is produced through hormone changes.
2. Eating chocolate can cause acne.	<u>False.</u> Acne is not caused by foods eaten. However, some food allergies may aggravate skin problems.
3. Antibiotics may be prescribed for the treatment of acne.	<u>True.</u> Although antibiotics have no effect on hormone production, they may prevent scarring if a secondary infection exists.
4. Squeezing pimples is not dangerous because it helps to clear pores.	<u>False.</u> Squeezing pimples can result in infection and scarring.
5. A good treatment for acne is a sauna or steam facial to open pores.	<u>False.</u> Steaming may result in greater oil production.
6. Acne becomes worse under stress.	<u>True.</u> During stress, the endocrine system reacts sometimes causing acne to worsen.
7. Acne is caused by bacteria found on skin.	<u>False.</u> Bacteria does not cause acne but can cause secondary infection.
8. Hair on the forehead will cause acne problems.	<u>False.</u> Oil from the hair does not move to the face. Washing away oil in hair will not cure acne.
9. Dandruff and acne usually occur together.	<u>False.</u> There is no correlation between dandruff and acne.
10. A dermatologist is a doctor who specializes in care of the skin.	<u>True.</u>

2. Have students research the following topics and report findings to class:

- o How does acne form on skin?
- o Can diet control acne?
- o What is the best way to control acne?

3. Have students compare 5 to 10 different over the counter acne medications as to ingredients and price. Discuss results in class.

- o How does price vary for each product?
- o Are the better known products more expensive?
- o Do the ingredients vary much from product to product?
- o Are the ingredients in the inexpensive products similar to the more expensive variety?

4. Have students do some research to determine the functions of the leading ingredients in acne medicines.

- o How do these ingredients affect acne symptoms?
- o Compare high and low cost acne medications for effective ingredients.

5. Have students draw posters that demonstrate through pictures the proper skin care and treatments to control acne.

6. Have a dermatologist visit the class to explain the various treatments for acne. Students should prepare questions before the presentation.

As certain hormones, testosterone and androgens increase, they increase oil in glands near the surface of skin. If glands become blocked, whiteheads, blackheads and pimples occur.

Vitamin A applied to skin seems to be an effective treatment. However, taken orally, it has no effect on acne.

Information on medications for acne can be obtained by writing to manufacturers listed on the products.

TOPIC:

SUB-TOPIC: Food Allergies

TERMINAL OBJECTIVE:

ENABLING OBJECTIVE: To identify food allergies, their physical manifestations, recommended treatments, and their prevention.

LEARNER ACTIVITIES	TEACHER INFORMATION
1. Have students do research to distinguish between food allergies and toxins naturally occurring in foods. - o What types of foods cause allergies? - o What types of foods contain toxins? - o What symptoms do food allergies/toxins cause? - o How are the causes of food allergies detected? - o How are allergies/cases of food poisoning treated?	<u>Food Allergies</u> usually: - o cause gastrointestinal disturbances - o begin in early childhood - o are seldom revealed in skin tests Reactions to food are usually delayed for several hours and last several days. Detection of food allergies depends chiefly on the process of elimination. <u>Toxicity</u> can result from: - o overdose of fat soluble vitamins A,D,E,K - o excessive intake of vitamin C or ascorbic acid, niacin, thiamine - o consuming seafood that has eaten certain plankton - o pesticides and chemicals used as fertilizers for growing foods - o foods difficult to digest when eaten in large quantities (onion, garlic, coffee, boiled cabbage, etc. <u>Resource:</u> <u>Food Allergy</u>. Frederick Speer. PSG Publishing Company, Inc. Littleton, Massachusetts. 1979.

2. Invite an allergist from an area hospital or clinic to discuss how food allergies are detected and treated.
3. Have students interview someone who has an allergy.

- o When did the allergy begin?
- o How was the cause of the allergy detected?
What is the cause?
- o What symptoms does the allergy cause?
- o How is the allergy treated?
- o Do other members of the family have the same allergy?
- o How does the family deal with the food allergy?

4. Have students roleplay the following situations:

- o a young child with an allergy to chocolate attending a birthday party
- o a young man taking a date who has an allergy to milk products to a French restaurant
- o several people becoming ill at an all-day clambake
- o a mother sending her child with several food allergies to visit grandparents for a week.

The roleplaying should involve:

- o How does the person feel about his allergy?
- o What problems does the person face that are caused by the allergy?
- o How can others assist a person with a food allergy?

TOPIC:

SUB-TOPIC: Dental Problems

TERMINAL OBJECTIVE:

ENABLING OBJECTIVE: *To list factors that cause tooth decay and analyze individual diets according to those factors.*

LEARNER ACTIVITIES	TEACHER INFORMATION										
1. Invite a dental hygienist to speak to the class about dental health. 2. Have students design posters that illustrate practices that promote healthy teeth. Include: - o foods to be eaten - o foods to be avoided - o methods of cleaning teeth - o dental services available 3. Have students identify ten snack foods that are low in sugar. Each student can prepare a snack at home to share with the class.	Healthy teeth depend on careful dental hygiene, exposure to fluoride, and proper diet. The condition of the jaw and gums is equally important in preserving teeth for a lifetime. Foods high in sugar such as honey, soda, candy, gum, frostings, cake, jelly, maple syrup, promote tooth decay. Foods high in calcium, phosphorus, vitamins A, C, and D such as milk and dairy products, orange and dark green, leafy vegetables, and citrus fruits, promote healthy teeth. Some snack ideas: <table><tr><td>o celery stuffed with cream cheese</td><td>o plain yogurt</td></tr><tr><td>o frozen bananas</td><td>o fresh fruit</td></tr><tr><td>o sunflower seeds</td><td>o raw vegetables</td></tr><tr><td>o breadsticks</td><td>o popcorn with</td></tr><tr><td>o cheese</td><td>parmesan cheese</td></tr></table>	o celery stuffed with cream cheese	o plain yogurt	o frozen bananas	o fresh fruit	o sunflower seeds	o raw vegetables	o breadsticks	o popcorn with	o cheese	parmesan cheese
o celery stuffed with cream cheese	o plain yogurt										
o frozen bananas	o fresh fruit										
o sunflower seeds	o raw vegetables										
o breadsticks	o popcorn with										
o cheese	parmesan cheese										

4. Have students investigate the label of packaged foods at home for sugar content.
 - o What foods are high in sugar content?
 - o Were the students surprised about the sugar content of any foods?
5. Have students watch television for one evening and make a note of the food commercials they see.
 - o How many advertised foods are high in sugar?
 - o Were the commercials shown at a time when small children could be watching?
 - o How does advertising promote tooth decay?
6. Have students keep a daily log of foods eaten.
 - o How many foods eaten are high in sugar?
 - o What other foods could be substituted for those high in sugar?
 - o Where can they eliminate adding sugar to food?
 - o Does their diet contain foods high in the nutrients essential to good dental hygiene?
7. Have students research the reaction of sugar bacteria, and the formation of plaque on tooth enamel.

Ingredients are listed in order of those present in the highest amount to those present in the lowest amount.

Other names for sugar include sucrose, lactose, fructose, dextrose, maltose.

Resource: A videotape designed for elementary students called "Captain Plaque and the Bacteria Boys" is available from the Media - Materials Distribution Service, New York State Education Department, 55 Elk Street, Albany, N.Y. 12234. Students would be entertained and educated by this videotape.

TOPIC:

SUB-TOPIC: Obesity

TERMINAL OBJECTIVE:

ENABLING OBJECTIVE: *To identify characteristics, health problems and alternative diets associated with an overweight person.*

LEARNER ACTIVITIES	TEACHER INFORMATION
1. From magazines have students cut out pictures of people who they feel are overweight, average, and underweight. - o Mount pictures on poster board for discussion. - o Do students agree on which pictures are of overweight, average, and underweight people? - o From these pictures, how would you define obesity? - o What can individuals do to control their weight? 2. Other than physiological need, list some factors that influence the amount of food we eat. 3. Discuss some developments which contribute to a sedentary life for many Americans. Have the students keep track of the time they spend in a day performing actual physical activity. Have them list ways they could increase the amount of energy expended in exercise.	Obesity is defined as weighing 20% or more above desirable weight. Answers should include diet and exercise. In severe cases, clinics, hospitalization, operations, and hypnosis may be utilized. (See pages 64-65 and 84 of the <i>Teachers' Manual</i>.) Some of the obvious developments that have contributed to our sedentary way of life are: the car, elevator, automatic washing machines and other automatic appliances, airplane, electric pencil sharpener, rapid means of transportation, movement from rural to urban living.

4. Listed below are factors associated with the increased incidence of obesity among Americans. After carefully considering all of them, have the students rank order them according to the degree of impact they feel each has on the incidence of the problem. (1 = greatest impact.) Have the students explain their rankings.

- o Most Americans have access to more than enough food to meet their calorie needs.
- o Our appetites are not controlled by our need for food energy.
- o Everyday living demands less and less of us in the way of physical exercise.
- o Fast food establishments and convenience foods make it easier to obtain tasty foods whenever an appetite is stimulated.

5. Have students divide into small groups and prepare a menu for weight reduction. Be realistic in the foods that are chosen. Keep caloric values down.

- o Make a list of sugar-free snacks to use in a diet. Choose one to make at home and bring in to share with class.

Obtain a copy of Food and Fitness from the Blue Cross Insurance Company. Write to Blue Cross of Northeastern New York, Inc., P.O. Box 8650, Albany, N.Y. 12208

Resource: The Changing American Diet Letitia Brewster and Michael F. Jacobson, Ph.D. Center For Science in the Public Interest Washington, D.C. 1978.

Menu should not include junk foods as snacks. Do include broiled meats not fried, lean meats, poached eggs not fried, sauteed mushrooms in juice from can and herbs instead of butter.

Use calorie charts for foods selected. Keep nutrition a priority. Remember 3,500 calories must be lost to lose one pound.

6. Have the class analyze one of these alternative diets used in weight loss.

- o fasting
- o low carbohydrate, high fat and protein diet
- o fad diets such as grapefruit diet or water diet
- o vegetarian diets
- o Natural or organic food diets

7. Have students compare the following pairs of similar foods for caloric value.

- o butter/margarine
- o milk/skim milk
- o roast beef/chicken
- o sour cream/yogurt
- o diet soda/regular soda
- o fried egg/boiled egg
- o baked potato/corn on the cob

What conclusions can be drawn from this activity?

Fasting - causes loss of body fluids which are quickly replaced, eliminates food completely, depletes nutrients needed to remain healthy, lowers bodily resistance to infections.

Fad diets frequently appear in popular literature which drastically alter the proportions of carbohydrates, protein and fats. There are a number of books on the market that claim to have the answer to weight reduction.

Vegetarian diets - supplemented with dairy products and eggs are nutritionally sound, low in animal fat and cholesterol.

Natural foods - are foods from plants or animals which have been altered as little as possible.

Organic foods - are grown in soil enriched with natural fertilizers with no chemicals or sprays added. They have the same nutritional value as food offered in supermarkets.

Many "old wives tales" exist about the caloric value of food. Some examples:

- o margarine is lower in calories than butter
- o potatoes are fattening
- o all vegetables are low in calories

8. Have students weigh themselves and measure their height.

- o Determine their desirable weights through charts.
- o Set goals to reduce or gain weight.
- o Choose a favorite physical activity and calculate how long it would take to burn up 3,500 calories (or one pound).
- o Have students volunteer "eaters anonymous" confessions of their snacking, weight or other dietary problems. Have them make pledges to lose or gain a specific number of pounds within a certain amount of time, to cut out empty calorie snacks, to get some exercise every day, etc.

Charts are available that provide desirable weights according to sex and height. These can be obtained from the Metropolitan Life Insurance Company. Also, many college nutrition textbooks include such charts.

Resource: For Teenagers Only - Change Your Habits to Change Your Shape, Jeanne Ikeda, Bull Publishing Company, Palo Alto, California, 1978.

Students could draw up and sign a contract with the teacher.

9. Students can demonstrate the increased load on the cardiovascular system that obesity imposes. Have a student of normal weight engage in controlled exercise. (Stepping on and off a box or chair for a specified number of times will work.) Measure his/her pulse rate before and immediately after exercise. Allow him/her to rest until the pulse rate returns to normal. Then have him/her repeat the exercise holding a 20-pound weight, or better still wearing a jacket or vest that is weighted. Again measure the pulse rate.

o Did his/her heart have to work harder with the extra poundage?

10. Have students brain-storm a list of health risks associated with obesity.

11. Have the students observe a group of children--in a classroom, on a playground, at home, etc.

- o Look for children who are overweight. Notice the way that they are treated by the others and their reactions.
- o Do overweight children seem to "fit in" as readily as others?
- o Are overweight children as active as others?

Point out that if the extra poundage had been body tissue, the heart would in addition have had to pump blood through a much greater distance of vascular network.

Resource: "Obesity in Childhood and Adolescence: A Review," The University of the State of New York, the State Education Department, and EPSIS, 1980.

Students may come up with some unusual risks such as not being able to move fast enough to avoid being hit by a car. However, try to guide them in bringing out the well established risks such as early mortality, coronary heart disease, hypertension, diabetes, increased surgical risks, prolonged and difficult labor and delivery.

Children can often be rather cruel to each other. An obese child is often shy, withdrawn, inactive.

- o How would you describe the personalities of the overweight children you observed?
- o Share your observation with other class members.
- o What conclusions can be made?

12. Have the students attend a session of a weight control group. Interview participants to determine how they feel about themselves and their weight.

- o Are you basically a happy or unhappy person?
- o How do you feel about your appearance?
- o What kind of appearance would you ideally like to have?
- o How do you get along with your friends?
- o Do you look forward to and enjoy social events?
- o What is your favorite type of entertainment?
- o What types of physical activity do you participate in?

Compare results of interviews in class. Collectively describe an overweight or obese personality.

Some suggested weight control groups include: Weight Watchers, Diet Workshop, Overeaters' Anonymous.

13. Have students investigate the relationship between diabetes and obesity.

- o What is diabetes?
- o What are the symptoms of diabetes?
- o What causes diabetes?

Have students draw a diagram of the cause and effect relationship between diabetes and obesity.

Diabetes is an inherited disorder that develops only in people who have inherited the genetic tendency for it. One of the earliest symptoms of diabetes is excessive hunger. In the most common form of diabetes (the adult-onset type), the person typically becomes obese and then the diabetes appears.

An excellent resource for teaching about diabetes is "Diabetes Mellitus, An Instructional Guide for Patients and Their Teachers," New York State Department of Health, 1978.

TOPIC:

SUB-TOPIC: Stress

TERMINAL OBJECTIVE:

ENABLING OBJECTIVE: *To become aware of how stress affects nutritional status*

LEARNER ACTIVITIES

1. Define stress.
 - o What causes stress?
 - o How do people react to stress?
 - o How does stress affect health?
 - o How can stress be avoided?
2. Have students divide into small groups and relate to each other situations that were stressful for them.
 - o What caused the stress?
 - o How did they handle the situation?
 - o Could the situation have been handled in another way?
 - o Could the situation have been avoided?
 - o Did the situation affect your health? If so, how?
3. Have students brainstorm to list some ways that food is involved with stress.
 - o How are personal food and eating habits affected during stressful situations?
 - o Are certain types of foods and other substances used or abused during stressful situations?

TEACHER INFORMATION

Stress can be defined as intense exertion - strain and effort - the wear and tear of life. Stress can be positive in that it can cause an individual to perform in a way that s/he would not be able to otherwise. Too much or the wrong kinds of stress may have damaging side effects which can cause disease, aging, or even premature death.

Resource: Selye, Hans, M.D. Stress Without Distress. New American Library. New York, NY. 1975.

Some common reactions to stress include:

- o loss of appetite
- o binge eating
- o use of alcohol, caffeine
- o use of drugs (aspirin, tranquilizers)

4. Invite an internist or other physician to speak to the class about the health problems aggravated by stress.

- o ulcers
- o colitis
- o headaches
- o back pain
- o diarrhea

5. Have students roleplay some of the following stress producing situations.

- o taking final exams
- o arguing with parents
- o trying out for a school play or team
- o breaking up with a girlfriend or boyfriend
- o moving to a new community
- o having a close friend die

After each skit, have students determine whether the situation was handled in a way that increased or decreased the stress level. Include in the discussion alternative ways of dealing with the problems.

TOPIC:

SUB-TOPIC: Anorexia Nervosa

TERMINAL OBJECTIVE:

ENABLING OBJECTIVE: *To list characteristics, nutritional damage and psychological causes of anorexia nervosa*

LEARNER ACTIVITIES

1. Divide students into small groups. Choose a magazine article on anorexia nervosa to read. Have one student read the article out loud to the group.
 - Write a character sketch on the blackboard including the physiological (physical) and psychological (emotional) characteristics of an anorexic.
 - o loss of weight
 - o dry skin
 - o loss of hair
 - o constant exercise
 - o forced vomiting
 - o can be fatal
 - o need for control and independence
 - o need to succeed
 - o compulsiveness
 - o nervousness
 - o depression when food is eaten
 - o feeling of pride in self control
 - o eating becomes focus of life (replaces all other interests)
 - o fanatical about dieting
 - o fear of criticism
 - o fear of not living up to parents' expectations
 - Look for current articles about anorexia nervosa in:
 - o Family Health
 - o Current Health
 - o Psychology Today

TEACHER INFORMATION

2. List this example of a one-day food intake of an anorexic on the board.

Breakfast: grapefruit juice, whites of hard
boiled egg

Lunch: salad, no dressing

Dinner: same as lunch

Snacks: gum, trident mints, tab, bouillon

- o Have students determine caloric value of each food. What is the total caloric intake?
- o How many calories are needed for daily activities such as sleeping, sitting, normal body functions, walking?
- o How many calories are needed for physical activities such as running, biking, swimming?
- o How many calories should be eaten to maintain individual body weight?
- o What nutrients are lacking in such a severe diet?

3. Have students discuss the reasons why young people become anorexic.

- o What methods can be used to reverse this destructive behavior.
- o How effective are these methods?
- o How long does it take for the anorexic to become well again?

This diet regimen is lacking in:

protein - needed to build and repair body cells.

fat - needed to insulate body.

vitamins - needed to keep body functions running smoothly, hair shiny, skin healthy.

Some reasons for anorexia include vanity, self hate, attention seeking, desire for control over life, fear of being out of control.

Some methods of reversal are medication, hospitalization, psychological help, and family support.

4. Have students think about how they would help a friend who seemed to be anorexic. Roleplay these situations:

- o Susie is becoming so thin that people avoid her for fear she has a disease that is contagious.
- o Barry runs ten miles, jumps rope for thirty minutes, and lifts weights for one hour every day so that he will maintain the proper weight for wrestling.
- o Peggy skips breakfast and lunch and eats only a small dinner. After her family goes to bed, she gorges on sweets then forces herself to vomit. Peggy's parents try to bribe her to eat normally.
- o Bobby's parents are divorced. Since their separation, Bobby has lost fifteen pounds, quit the school activities he was involved in, and avoids his friends.

Often in the treatment of anorexia nervosa, both the anorexic and his/her family receive counseling.

TOPIC:

SUB-TOPIC: Cancer

TERMINAL OBJECTIVE:

ENABLING OBJECTIVE: *To identify nutritional factors related to cancer and evaluate diets in relation to these factors.*

LEARNER ACTIVITIES

1. Have students research nutritional factors that have been linked to cancer.
 - o lack of fiber in the diet
 - o food additives such as BHA, BHT, sodium nitrate, DES
 - o artificial sweeteners such as cyclamates, saccharin.
2. Have students clip magazine and newspaper articles that link diet and cancer.
 - o Discuss contents of articles in class.
 - o Make a collage of these articles on a bulletin board.
3. Have students survey other people for their feelings on the relationship between diet and cancer.
 - o Do they read literature on this subject?
 - o Do they believe what they read?
 - o Are their eating habits influenced by what they read?

TEACHER INFORMATION

Resource: Food and Your Well-Being. Theodore P. Labuza. West Publishing Company. New York. 1977.

It is interesting to observe the varying ways people are influenced by what they read. Behavioral changes do not readily occur.

4. Have students research and compare the incidence of specific cancers in the United States and other countries.

- o Which countries have the highest incidence of cancer? Lowest?
- o Graph the cancer rates of the different countries.
- o Compare the United States with other countries.

5. As a class project, have the students draw a map of the world on a bulletin board.

- o With different color tags, pinpoint the areas with high rates of cancer.

6. Have students choose a country and research its foods and eating habits.

- o How much fiber is eaten?
- o Is the country's diet high in animal foods?
- o How many food additives are used?
- o What cooking procedures are used?

Relate the country's cancer rate to its foods and eating habits.

Resource: Nutrition and Cancer, Myron Winick, John Wiley & Sons. New York. 1977.

Resource: Foods of the World Library, Time-Life Books,

7. Have students keep a daily journal for one week of foods eaten. Have students determine:

- o How many sources of fiber they eat?
- o How many foods they consume on a regular basis that contain suspected carcinogens?

Have students compare diets with each other and place themselves on the continuum below.



Have students suggest ways to improve their diets.

TOPIC:

SUB-TOPIC: Atherosclerosis and Coronary Heart Problems

TERMINAL OBJECTIVE:

ENABLING OBJECTIVE: *To identify risk factors and dietary characteristics associated with atherosclerosis and coronary heart problems.*

LEARNER ACTIVITIES

1. Define:
 - o cardiovascular disease
 - o coronary heart disease
 - o atherosclerosis
2. List the 10 leading causes of death in the United States.
 - o Where do cardiovascular diseases fall in the ranking?
 - o What are some reasons why cardiovascular diseases rank where they do?
 - o What percentage of CVD deaths occur in people under 65 years of age?
 - o What is the estimated cost of CVD annually?
3. From the list of risk factors given, have students describe the kind of individual who would be most coronary-prone and the kind of individual who would probably run the least risk of heart disease.

TEACHER INFORMATION

(See pages 85-88 of the *Teachers' Manual*.)

A medical dictionary would be helpful with these definitions.

Lifestyles should be stressed as an important factor, along with greater numbers of people reaching an age when heart disease is more likely to occur.

According to the American Heart Association, the ten risk factors associated with coronary heart disease are:

- o *Sex*--Women have fewer heart attacks than men.
- o *Diabetes*--People with diabetes or a family history of diabetes are more likely to suffer a heart attack.
- o *Family history* of coronary heart disease.

4. Discuss which risk factors are unalterable.

- o Which ones can be changed with the help of a physician?
- o Which ones are completely within the individual's control?

5. Have the students tentatively calculate their coronary disease risk by using the American Heart Association table. Compare the findings within the class according to sex and any other variables desired.

6. Have the students make a search of family health records or simply interview other family members to determine any history of heart disease.

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- o *Personality type*--The type A personality is more prone to heart disease.
- o *Hypertension*--high blood pressure can precede a heart attack.
- o *High blood cholesterol*--although still controversial, there is evidence that high blood cholesterol can contribute to heart attacks.
- o *Smoking*--cigarette smokers have 3 times the number of heart attacks as nonsmokers.
- o *Physical activity*--exercise tends to strengthen the cardiovascular system.
- o *Overweight*--There is a higher incidence of heart disease among the obese than among those who maintain their ideal weight.
- o *Stress*--emotional stress can be a precursor to heart attacks if it is continuous over a period of time.

Obtain from the local unit of the American Heart Association copies of their "Coronary Risk Estimate."

Genetic predisposition is probably the foremost risk factor in heart disease.

7. Have the students observe someone's lifestyle (parent, grandparent, friend.)

- o Identify any risk factors they might have for heart disease.
- o Write a case study of the observations.
- o Inform the person of their risks.
- o Explain how the risk relates to heart disease.
- o Determine their level of concern.
- o Make suggestions to help them alter their lifestyle.

Caution students to use discretion in handling the person they choose to study.

8. Define:

- o saturated fats
- o unsaturated fats
- o cholesterol

If some of the students have taken chemistry, invite them to prepare an explanation for the class about the chemical difference between saturated and unsaturated fats.

A saturated fat is one whose carbon atom is attached to four other atoms. This type of structure is stable and will not react with hydrogen. Generally, these are solids at room temperature whereas unsaturated fats are liquids.

9. Invite a dietitian to discuss with the class current findings about the association of saturated and unsaturated fats and cholesterol to heart disease.

Cholesterol is an organic, waxy compound only found in foods of animal origin. Normally, cholesterol is synthesized by the body.

10. Have students keep a record of how many times they hear the word "polyunsaturated" while watching an evening of television.
 - o What foods were being advertised?
 - o Could the meaning of the word be interpreted from the advertisement?
11. Have students compile a list of foods they believe are high in saturated fats and low in saturated fats. After brainstorming, verify the lists.
12. Set up a display of food products comparing saturated and unsaturated fats.
 - o Include examples of food products containing both types of fats.
13. Listed below are some dietary characteristics which are considered as possible risk factors for coronary heart disease. Have the class rank order them according to the degree of impact you feel each has on the eventual development of coronary heart disease. (#1 - most important.)
 - o Overconsumption of food.
 - o Excess of dietary fat and a low ratio of polyunsaturated to saturated fats in the diet.
 - o Excess of dietary sucrose.
 - o High consumption of salt.
 - o Deficiency of dietary fiber.
 - o Softness of the water supply.

Unsaturated fatty acids are those in which one or more double bonds occur between the carbon atoms so they are capable of holding more hydrogen atoms. A mono-unsaturated fatty acid contains one double bond. Polyunsaturated fatty acids contain 2 or more double bonds.

Foods containing saturated fats include meats, dairy products and coconut oil. Foods high in mono-unsaturated and polyunsaturated fats include cottonseed, corn, olive, and safflower oil.

This could be a bulletin board idea.

Peoples' reactions to learning they may be a coronary-prone individual vary greatly. Some are anxious to change any destructive habits they have. Others would rather take a chance than adapt.

Which factors are more readily changed or adapted by people who are coronary risks?

Which factors would be more difficult to change?

14. Have the class divide into 4 groups. Each group can choose one of the following agencies to research:

- .American Heart Association
- .American Medical Association
- .National Research Council
- .American Lung Association

- o Determine the position held by the agency on the role and place of diet in causation, control, and prevention of coronary heart disease.
- o Acting as agency representatives, present position to the class and answer any questions on that position.
- o Compare and contrast the various agency positions.

TOPIC

NUTRITION AND REPRODUCTION

SUB-TOPICS

PRECONCEPTUAL NUTRITION

NUTRITION DURING PREGNANCY

LACTATION

TEENAGE PREGNANCY

TERMINAL OBJECTIVE

To understand that adequate nutritional status is extremely important during all phases of the woman's reproductive cycle.

ENABLING OBJECTIVES

The student will be able to:

1. conclude that the time to begin preparing for a healthy and successful pregnancy is many years before conception occurs.
2. conclude that adequate nutrition during pregnancy is important for the health of the mother and baby, and is crucial for the success of the pregnancy.
3. conclude that nutritional needs are greatest during lactation.
4. list several nutritional concerns as they apply to the pregnant teenager.

TOPIC: Nutrition and Reproduction

SUB-TOPIC: Preconceptual Nutrition

TERMINAL OBJECTIVE: To understand that nutrition is important during all phases of the reproductive cycle.

ENABLING OBJECTIVE: To conclude that the time to prepare for a healthy and successful pregnancy is many years before becoming a parent.

LEARNER ACTIVITIES	TEACHER INFORMATION
1. Use a library day to have the students investigate statistics on birth rate and weight internationally, nationally, and locally. Make sure to note statistics regarding teenagers. - o Examine information on local trends from city or county health departments. - o Have students draw conclusions about birthrate, weight, and infant mortality in countries and localities studied. - o What are the statistics for teenage mothers? 2. Have students brainstorm a list of implications and meanings of the quoted statement in teacher information.	For birth weight statistics see <u>Living Nutrition</u>. Stare and McWilliams. John Wiley & Sons, Inc. NY. 1977. p. 292. The city or county health department is a good source for local information. The library should provide international and national information. (See page 70 of the <i>Teachers' Manual</i>.) For teenage birthrate statistics, see <u>Nutrition in Pregnancy and Lactation</u>. Worthington, V. and Williams, S.R. C.V. Mosby Company. St. Louis. 1977. p. 119 and "Teenage Pregnancy and Nutrition: A Review," The University of the State of New York. State Education Department. EPSIS. Albany, NY. 1980. p. 55. "The goal of prenatal care is so important that the extent to which it is achieved is often used as a measure of social and economic development among nations throughout the world." <u>Nutrition in Pregnancy and Lactation</u>, p. 1

TOPIC:

3. From the information gathered from investigation of birth statistics, describe a woman who has the most/least ideal physical profile for pregnancy.

- o Have each student take a factor on the list and tell briefly why they believe it influences the outcome of pregnancy. (Keep in mind how these might contribute to nutrition.)
- o How many of those factors would a woman have control over?
- o Have students individually think through these factors and jot down conclusions.

A woman who has the best chances for a successful pregnancy would:

- o be in her early twenties
- o be more than five feet four inches tall
- o have a long, oval pelvis
- o have had a successful prior pregnancy
- o live in an industrial nation (food availability)
- o be white
- o be a professional or upper class (education)

A woman who has the greatest risk of developing problems in pregnancy would:

- o be under 17 or over 35 years of age
- o have had prior birth complications
- o be in her first pregnancy
- o have pregnancies less than one year apart
- o have previously given birth to a stillborn or disabled child
- o be an unwed mother
- o be of nonwhite race
- o lack an education

Discuss conclusions.

4. Have students take a few minutes to assess what their mother's chances of a successful pregnancy were when they were born (or what their own child's would be now).

- o Draw conclusions about which factors were under their mother's (their own) control at the time.
- o What is one thing that each student could do to prepare now for healthy children?

5. Invite a local gynecologist or obstetrician to speak to the class about the relationship between contraceptives and nutrition.

- o What effects do the use of oral contraceptive agents and intrauterine devices have on nutritional needs of women?
- o What precautions should be taken to prevent nutrient depletion?
- o What advice should physicians give their patients about preconceptual nutrition in relation to contraceptive methods?

The ability to deliver a healthy child will be influenced by a woman's:

- o environment
- o prior history
- o knowledge of reproduction and nutrition
- o lifelong health

(See pages 70-71 of the *Teachers' Manual* for the nutritional effects associated with these birth control methods.)

6. Have students identify a list of substances that may adversely affect reproduction and preconceptual nutrition.

- o cigarette smoking
- o alcohol consumption
- o marijuana use

Assign students various reference materials (Reader's Guide, New York Times Index, card catalog, etc.) to search for information on the effects of these substances on preconceptual nutrition and reproduction.

- o Post findings on blackboard or posters
- o Students should draw conclusions about the effects of substance abuse on nutrition and reproduction.

7. Provide students with a copy of the statement written below and have them give evidence, from their class notes and research, as to the meaning and truth of the statement.

"The factors that place a pregnant woman at nutritional risk have operated over her lifetime and will continue to affect the nutritional status, growth, and development of her child."

You may want to use the "Reproduction" part of the filmstrip "Marijuana Bulletin: A Research Update." Sunburst Communications Inc. Pleasantville, NY. 10570. 1980. It includes current research on the effects of marijuana on nutrition and the reproductive organs of males and females.

The conclusion of this paragraph follows:

"These include poverty, poor education, a deprived environment and poor health. Surveys have shown clear association between these factors and the nutritional status of infants, children and women of childbearing age. Although all women need nutritional guidance during pregnancy, those who conceive in poor nutritional status...., require special care." From Nutrition in Pregnancy and Lactation, p. 25.

TOPIC:

SUB-TOPIC: Nutrition During Pregnancy

TERMINAL OBJECTIVE:

ENABLING OBJECTIVE: *To conclude that adequate nutrition during pregnancy is important for the health of the mother and baby, and is crucial for the success of the pregnancy.*

LEARNER ACTIVITIES	TEACHER INFORMATION
1. Have students discuss their nutritional environment in relation to foods available in their community and home. - o What are reasons for being malnourished in our society? - o Discuss students' eating habits. 2. Have students write an evaluation of their past and present eating habits. - o Who was responsible for making meals when they were younger and now? - o Did parents insist on them eating "good" foods at a young age? Now? - o What role do snacks play in their eating patterns? - o Determine if they are properly nourished and if this diet might nourish a pregnant woman responsible for the growth of a developing fetus..	(See page 31 of the <i>Teachers' Manual</i>) and the information gathered from activities 1, 2 and 3 in the topic, Nutrition and Reproduction, Sub-Topic, Preconceptual Nutrition. Activities 1 and 2 in this unit are designed to motivate students to begin to think about nutrition and pregnancy. They can be used by the teacher to determine students' prior knowledge and attitudes about their own nutrition and how this can be applied to understanding needs in pregnancy.

3. On a chart, record food intake for one day.

Food & Amount	Calorie (k cal)	Protein (g)	Fat (g)	Carbo-hydrate (g)	Cal-cium (mg)	Iron (mg)	Vit A (IU)	Thia-mine (mg)	Ribo-flavin (mg)	Nia-cin (mg)	Ascorbic Acid (mg)	Zinc (mg)

o Determine the nutritive value of your food.

For determining amounts of nutrients found in foods, use a chart such as "Nutritive Values of the Edible Parts of Foods" found in the back of Living Nutrition. Stare and McWilliams. John Wiley and Sons, Inc. 1977, pp. 419-454.

o Compare it with dietary allowances for pregnant women.

Use the chart in this book on the next page.

o Determine what nutrients and energy requirements are deficient or excessive and plan to modify a day's diet to meet the needs of a pregnant female.

o Have all students try for one day to eat on this modified diet plan.

DIETARY ALLOWANCES FOR WOMEN
National Research Council, Revised 1980

	Nonpregnant Females				PREGNANCY	LACTATION
	11-14 yrs.	15-18 yrs.	19-22 yrs.	23-50 yrs.		
Energy (k cal)	2,200	2,100	2,100	2,000	+ 300	+ 500
Protein (g)	46	46	44	44	+ 30	+ 20
Vitamin A (μ g RE)	800	300	800	800	+ 200	+ 400
Vitamin D (μ g)	10	10	7.5	5	+ 5	+ 5
Vitamin E (mg α -TE)	8	8	8	8	+ 2	+ 3
Ascorbic acid (mg)	50	60	60	60	+ 20	+ 40
Folic acid (μ g)	400	400	400	400	+ 400	+ 100
Niacin (mg NE)	15	14	14	13	+ 2	+ 5
Riboflavin (mg)	1.3	1.3	1.3	1.2	+ 0.3	+ 0.5
Thiamin (mg)	1.1	1.1	1.1	1.0	+ 0.4	+ 0.5
Vitamin B ₆ (mg)	1.8	2.0	2.0	2.0	+ 0.6	+ 0.5
Vitamin B ₁₂ (μ g)	3.0	3.0	3.0	3.0	+ 1.0	+ 1.0
Calcium (mg)	1,200	1,200	800	800	+ 400	+ 400
Phosphorus (mg)	1,200	1,200	800	800	+ 400	+ 400
Iodine (μ g)	150	150	150	150	+ 25	+ 50
Iron (mg)*	18	18	18	18	*	*
Magnesium (mg)	300	300	300	300	+ 150	+ 150
Zinc (mg)	15	15	15	15	+ 5	+ 10

* The increased requirements of pregnancy cannot usually be met by ordinary diets; therefore, the use of 30-60 mg. of supplemental iron is recommended.

Nutrient	Nonpregnant Adult Need	Pregnancy Needs	Reason for Increased Need in Pregnancy	Research Deficiencies	Food Sources
Calories	2100 k cal	2400 k cal	-increased basal metabolism rate -increased energy needs	-low birth weight which may precondition the infant to lower mental ability	carbohydrates, fats, proteins
Iron	18 mg	18+ 30-60 mg supplement	-increased maternal blood volume circulating -fetal liver iron storage -high iron cost of pregnancy	-iron deficiency in women causes increased cardiac output; causes fatigue, stress and possible cardiac arrest	liver, meat, eggs, whole grains, leafy vegetables, nuts, legumes, dried fruits
Calcium and Phosphorus	1200 mg each	1600 mg each	-fetal skeleton and tooth bud formation		whole grains, leafy vegetables, egg yolk, milk, cheese, lean meat
Protein	46 g	76-100 g	-rapid fetal tissue growth -placental growth -maternal tissue growth -plasma protein increase	-produce malformation or retarded growth	cheese, egg, meat, milk, grains, legumes, nuts
Iodine	150 μ g	175 μ g	-increased basal metabolism rate -increased thyroxin production	-severe deficiency may result in birth of cretin	iodized salt
Vitamin A	800 μ g RE	1000 μ g RE	-essential for cell development hence tissue growth -tooth bud and bone formation	-insufficient amounts may cause cleft palates, and blindness in fetus	butter, cream, green and yellow vegetables
B Vitamins	about 1.7 mg	increase 15%	-needed for protein and energy metabolism	-severe deficiencies may be responsible for fetal death, reduced growth and congenital malformation	meats, beans, peanuts, pork, milk, liver, grains, legumes

Nutrient	Nonpregnant Adult Need	Pregnancy Needs	Reason for Increased Need in Pregnancy	Research Deficiencies	Food Sources
Folic Acid	400 mg	800 mg	-production of cell nucleus material -increased metabolic demand	-can cause anemia in pregnant women which may deprive fetus of oxygen and cause low birth weight	liver, green leafy vegetables
Vitamin D	7.5 μ g	12.5 μ g	-mineralization of bone tissue and tooth buds -absorption of calcium and phosphorus	-caused bowed legs and poor dental formation	fortified milk
Ascorbic acid	15 mg	70 mg	-tissue formation, cement substance in cells, increases iron absorption		citrus fruits, berries, melons, tomatoes, peppers
Zinc	15 mg	20 mg		-low body weight and congenital abnormalities	meats, dried peas and beans, organ meats, oysters, veal, whole wheat products

4. Have students discuss then write conclusions based on the previous activities.

- o How did they develop their food habits and patterns?
- o What food habits do they have that would have to be modified to meet dietary recommendations for pregnant women?
- o How did the boys in the class feel about these changes (if they consume a large amount of calories, how could this help them understand a pregnant woman's need to control intake)?
- o What would be the role of the expectant father in helping the expectant mother maintain a proper diet?
- o How did the girls in the class feel about the adequacy of their diets?
- o What do they believe is the purpose of good nutrition in pregnancies?

5. Provide the students with a "Nutritional Needs in Pregnancy" chart (see next page). Have students fill in the columns as teacher provides information on:

- o nutrient needs
- o special nutrient function for pregnant woman and developing fetus
- o any research found on these nutrients in relation to pregnancy
- o deficiencies
- o food sources

The expectant father's support, encouragement and knowledge are valuable motivating forces for the expectant woman to maintain her diet.

(See pages 71-73 of the *Teachers' Manual*.)

See Nutrition in Pregnancy....(p.76-78) and Living Nutrition. (p.287-288).

Assign each student a nutrient to research further, particularly relative to deficiencies in pregnancy. On construction paper write:

- o name of nutrient
- o need in pregnancy
- o research findings about deficiencies in pregnancy

Students should walk around to read papers which have been posted.

- o In small groups, write conclusions about the importance of nutrition in pregnancy.

6. Consider showing the film *Have a Healthy Baby*.

7. As a class project, prepare posters that depict the development of the fetus month by month.

- o Indicate on the posters the nutrients necessary for the type of growth occurring.
- o What foods can supply those nutrients?

The film Have a Healthy Baby can be rented from Krasker Memorial Library, School of Education, Boston University, Boston, MA 02215, telephone (617) 353-3272.

This film is a very good treatment of cell division and embryonic growth, showing development from conception through birth. The film concentrates on the vulnerability of the embryo in the first 3 months. An actual birth is shown. The teacher will have to decide whether the film is appropriate for a particular class.

For a shorter project, depict pregnancy in three stages:

1. pre-implantation period - about two weeks following conception. (First month-embryo increases 10,000 times.)
2. period of organ formation - approximately 2 to 8 weeks.
3. period of rapid growth - of the fetus and the establishment of maternal reserves in preparation for labor, the puerperium, and the production of milk, from the eighth week to term.

8. Explain the basis for the recommended increases in the number of servings of the various basic food groups during pregnancy.

o Can you explain the difference in the milk group recommendation for a pregnant adult and pregnant teenager?

o Develop a day's menu for a pregnant woman.

9. Have the students make a chart that accounts for the weight gain during pregnancy. List the products of a normal pregnancy with their average weights.

o What is the recommended total weight gain during pregnancy?

10. Compare the calorie recommendations of pregnancy with those of a woman in her prime childbearing years (22-35).

o Is the calorie recommendation increased as much proportionately, as the recommendations for other nutrients?

o What does this mean to the woman with regard to the care with which she selects her foods?

o Based upon what you know about development of the fetus and when it gains most of its weight, when during pregnancy do you think the woman's calorie needs are greatest?

o Make some suggestions for helping a pregnant woman maintain proper caloric intake if she develops a large appetite and cravings; if she seldom feels like eating.

Number of Daily Servings

<u>Food Groups</u>	<u>Nonpregnant</u>	<u>Pregnant</u>	<u>Lactating</u>
Milk			
adult	2	3	4
teenager	4	5	5
Vegetable-fruit	4	4	4
Meat	2	3	2
Grain	4	4	4

The following represents the average weight of the products of a normal pregnancy:

fetus---7.5 lbs.

Placenta--- 1 lb.

Amnionic fluid--- 2 lbs.

Uterus (weight increase)--- 2.5 lbs.

Breast tissue (weight increase)--- 3 lbs.

Blood volume (weight increase)--- 4 lbs. (1500 ml.)

Maternal stores--- 4 to 8 lbs.

It is important to stress that there is little room for empty calories in the pregnant woman's diet.

(See page 46 of the *Teachers' Manual* for a chart of the RDAs.)

Caloric needs increase as pregnancy progresses, being greatest during the last two trimesters. Typically, weight gain of 1-2 kilograms (2-4½ lbs.) is average during the first trimester. Then, 0.4 kilograms (½ to slightly less than 1 lb.) is an average gain per week during the last 6 months.

11. Make arrangements for a panel composed of nutritionist, an obstetrical nurse, and several women who have been pregnant. Discuss weight control before, during, and after pregnancy. Ask:

- o What feelings did you have about controlling your weight during pregnancy?
- o What was your weight gain pattern?
- o What problems did you have in relation to your weight during pregnancy?
- o What measures have been successful in keeping your weight down?
- o Do you think that a pregnant woman should go on a reducing diet? Why or why not?
- o Under what circumstances might a doctor recommend a reducing diet for a pregnant woman?

12. Have the students interview mothers, sisters, grandmothers, aunts to identify some common misconceptions and myths surrounding the dietary needs of pregnant women. Discuss the lists as a class.

- o How do you think these misconceptions came about?
- o Attempt to disprove each misconception.

In order to insure proper nutrition, it is generally unwise to severely restrict weight gain during pregnancy. A weight reduction diet during pregnancy, as for a grossly overweight pregnant woman, must be closely scrutinized by a physician.

Some common misconceptions or myths include:

1. A pregnant woman is eating for two.
2. A pregnant woman's desire for a particular food indicates that she is lacking in some nutrient present in the desired food (e.g., pickles).
3. Some women practice eating clay or starch during pregnancy to ensure that the baby be normal.
4. Pregnant women should eliminate salt from their diet.
5. A mother must lose one tooth for each child (insinuating that a fetus develops normally at the expense of the mother's body).

13. Invite several women, a variety of ages, and including health professionals, to share their pregnancy experiences with the class.

- o Describe your eating habits during pregnancy.
- o Did you change your eating habits during pregnancy? Why or why not?
- o Did you experience any nutritional depletions during pregnancy and lactation?
- o How can nutritional depletions be avoided?
- o How did you feel about your weight during pregnancy?
- o How did you bring your weight back to the desired level?
- o How long does it take for the body to "recover" from pregnancy?

14. Have each student bring in at least one recent article dealing with the effects of drugs, alcohol, tobacco or vitamin pills on the expectant mother and/or fetus.

- o Underline information that directly relates to nutrition.
- o Make a bulletin board.
- o Discuss how helpful or harmful these substances may be during pregnancy.

Perhaps the class can choose the women to be invited from among their personal acquaintances.

Although much research has been done about the effects of alcohol, tobacco and drug consumption in relation to pregnancy, statistics are still limited as to their effects on nutrient absorption during this time. It does seem appropriate here to include a brief discussion of these topics and their relation to the developing fetus.

TOPIC:

SUB-TOPIC: Lactation

TERMINAL OBJECTIVE:

ENABLING OBJECTIVE: *To conclude that nutritional needs are greatest during lactation.*

LEARNER ACTIVITIES	TEACHER INFORMATION
1. Using the Recommended Daily Dietary Allowances, compare the nutritional recommendations of a nonpregnant woman during her prime childbearing years with those during lactation. - o What do you notice about the recommendations for the period of lactation compared to the nonpregnant phase of the reproductive cycle? - o What would account for this difference? - o Why is this difference necessary?	Refer to the "Dietary Allowances For Women" chart on page 78 in this guide.

TOPIC:

SUB-TOPIC: Teenage Pregnancy

TERMINAL OBJECTIVE:

ENABLING OBJECTIVE: *To state several special nutritional concerns as they apply to the pregnant teenager.*

LEARNER ACTIVITIES

1. Invite a professional from Planned Parenthood or another community organization that deals with teenagers to speak to the class.
 - o Describe the typical teenager who uses the services available.
 - o What health problems including nutritional ones do the teenagers have?
 - o What do you know of the teenagers' eating habits?
 - o How physically active are the teenagers?
2. Review the statistics on birth rate trends nationally and in their community. Especially note the proportion of births to mothers who are teenagers.
 - o What special problems does a pregnancy present when it occurs in a teenager, rather than in a woman in her prime childbearing years?

TEACHER INFORMATION

Use this activity to begin to develop a profile of a teenage girl's habits that might determine the course and success of pregnancy.

(See page 73 of the *Teachers' Manual*.)

3. Discuss how these typical behaviors of a teenage girl may complicate a pregnancy.

- o Readily succumbs to social pressures.
- o Overly concerned about a slender figure.
- o Indulges in food jags.
- o High intake of sweets, carbonated beverages, and snack foods.

4. Have the students write what their behaviors would be if they (or a girlfriend) were going to have a baby in their present circumstances.

- o What changes would occur in their living patterns?
- o What would be their major problems or concerns?
- o Would nutrition and health of the baby be important to them?

5. Doctors often recommend routine vitamin and mineral supplements for the diet of a pregnant teenager.

- o What is the reason for this?
- o Can the supplements substitute for a well-balanced diet?
- o How can she be encouraged to improve her dietary habits?

The stresses of pregnancy superimposed upon a body not yet fully developed are further complicated when a teenage girl is unmarried. She may be under severe emotional stress which interferes seriously with the ability to maintain positive balances of nitrogen and minerals.

Having the students assess how they would feel in this situation may help them understand the special problems of a pregnant teenager.

See "Teenage Pregnancy and Nutrition - A Review," The University of the State of New York. State Education Department. Educational Programs and Studies Information Service - EPSIS. 1980.

6. Have students write a response to the following question. "If you have a friend who is going to have, and keep, her baby, what kinds of things would you try to talk to her about?"

(For a variation of this activity, have the students role play conversations between a pregnant girl and friend in which they discuss her pregnancy.)

Suggest to students that they answer some of the following questions when writing their response:

- o Would you talk about the girl's emotional problems, e.g., how she feels about the pregnancy?
- o Since you (the student) know about the importance of nutrition in pregnancy, would you give advice? Consider how this advice, if followed, may affect the life and health of a friend's child.
- o Do you have a responsibility to give your friend information she may not have about her health and the health of her baby?
- o What approaches would you use when giving information so that you and/or your friend would not feel uncomfortable (so you're not "preaching" to her, etc.)?

TOPIC

INFANT NUTRITION

SUB-TOPIC

NEEDS OF THE INFANT MET BY FOOD

BREAST vs BOTTLE FEEDING

NUTRITIONAL NEEDS OF THE INFANT

TERMINAL OBJECTIVE

To recognize the importance of good nutrition to the infant for both physical and emotional reasons.

ENABLING OBJECTIVES

The student will be able to:

1. conclude that the feeding of an infant must meet its physical, social, mental, and emotional needs to insure the beginning of a healthy life.
2. compare the advantages and disadvantages of breast and bottle feeding.
3. appraise the nutritional needs of the infant.

TOPIC: Infant Nutrition

SUB-TOPIC: Needs of the Infant Met by Food

TERMINAL OBJECTIVE: *To recognize the importance of good nutrition to the infant for both physical and emotional reasons.*

ENABLING OBJECTIVE: *To conclude that the feeding of an infant must meet its physical, social, mental and emotional needs to insure the beginning of a healthy life.*

LEARNER ACTIVITIES	TEACHER INFORMATION
1. Have students brainstorm to answer the following questions: - o What are the physical and emotional characteristics and needs of an infant? - o Are there any special nutritional problems associated with the first year of life? - o Who is responsible for an infant's nutrition? - o What personal experiences have the students had with feeding infants? - o What bearing may nutrition in the first year have on later life? Briefly discuss each of the above questions, then make a list on the blackboard of things learned and still unanswered questions about infant nutrition.	Use the learning activities questions to pretest the students knowledge and attitudes about infant nutrition, and to encourage them to begin to think about this topic. The following statement is representative of information found in most current texts on the subjects of child and infant nutrition: Nutritional patterns during infancy lay the foundation for the dietary habits of a lifetime. Increasing evidence indicates that adequate nutrition during infancy is of permanent importance if a person is to achieve optimum development from the standpoint of both physical growth and mental capacity.

2. Assign groups of students to investigate the following topics dealing with infancy to one year:

- o physical needs and characteristics
- o emotional and/or social needs and characteristics
- o mental needs and characteristics

Students should provide a class report with notes, handouts and references for other students. They should include:

- o definition of the topic (e.g., physical is defined as...)
- o at least two text references
- o one available community agency resource
- o resources from one community professional
- o one reference from a recent periodical
- o conclusions on how the development of the child relates to nutrition
- o how the degree to which these are met relate to later life

Provide guidelines for students to follow:

- physical - look for growth charts, growth rates, size, physical abilities, physical needs (including exercise, food, sucking, etc.), growth spurts.
- social/emotional - look for abilities and growth patterns, the role of feeding in these developments, are food attitudes being established, how can you communicate feelings to infants, what kind of environment does baby need.
- mental - stages of mental growth, head/brain size development, how nutrition affects brain cell development of infant and later life, learning from eating (encouragement of exploration).

Have students begin their research from resources in the classroom. The following is a list of materials that are age appropriate, and deal with these topics as they relate to nutrition:

Briggs, George and Calloway, Doris. Nutrition and Physical Fitness. W.B. Saunders Co. Philadelphia. 1979. pp. 491-519

Hamilton, Eva, and Whitney, Eleanor. Nutrition Concepts and Controversies. West Publishing Co. New York. 1979. pp. 385-393.

McWilliams, Margaret. Nutrition For the Growing Years. John Wiley and Sons, Inc. New York. 1975. pp. 56-58.

Pipes, Peggy L., R.D., M.P.H. Nutrition in Infancy and Childhood. C.V. Mosby Co. St. Louis. 1977.

Stare, Frederick and McWilliams, Margaret. Living Nutrition. John Wiley and Sons, Inc. New York. 1977. pp. 312-325.

The Home Economics Department should have some child development texts and periodicals to loan that often include infant growth and nutrition articles. (Parents, American Baby, UNICEF News, Psychology Today are some examples.)

Contact community resource people, e.g., the LaLeche League, obstetricians and pediatricians, Well Baby Clinics.

Mealtime represents the infant's main social contact with the world as well as his/her source of nutrients for physiological needs. An infant's attitudes toward food are shaped early in life by the people in his/her environment and their verbal and nonverbal communications with him/her.

3. Have the students draw conclusions about the importance nutrition plays in the infant's life and his/her later total development.

TOPIC:

SUB-TOPIC: Breast vs Bottle Feeding

TERMINAL OBJECTIVE:

ENABLING OBJECTIVE: *To compare the advantages and disadvantages of breast and bottle feeding.*

LEARNER ACTIVITIES	TEACHER INFORMATION
1. As a pretest and introduction ask the students: - o What is the first nourishment infants receive? - o By what means do they usually obtain these nutrients? - o How do you think it is decided what ingredients should be put in the formula? - o What are your personal feelings about breast feeding? - o Can you think of any advantages and/or disadvantages associated with breast or bottle feeding? - o Do you think an infant would be better nourished using one method over the other? In a class discussion of the above answers, have the students record any nutritional facts mentioned.	Human milk or milk-based formulas are the infant's first food. S/he may obtain this food from a bottle or the human breast. As the percentage of upper middle class and college educated women choosing to breast feed is rapidly increasing, texts, periodicals and research journals are giving time and study to the subject of breast versus bottle feeding. Some of the more current references are listed here. Hamilton and Whitney <u>Nutrition Concepts and Controversies</u>. St. Paul, Minn. West Publishing Co. 1979. p. 385-389. Pipes, Peggy L. <u>Nutrition in Infancy and Childhood</u>. St. Louis. C.V. Mosby Co. 1977. Stare and McWilliams. <u>Living Nutrition</u>. New York. John Wiley and Sons. 1977.

2. Have students investigate a nutritional comparison of breast and cow's milk.

- o What are the most significant differences?
- o Take notes on the importance of the differences in human milk as compared to cow's milk in promoting human infant growth.

Breast milk promotes the rapid and favorable development of the infant's microflora in his/her intestinal tract and is less likely to be a source of undesirable or pathogenic organisms. (See page 74 of the *Teachers' Manual*.)

An excellent explanation of these essential differences and their implications for human growth are found in Stare and McWilliams. Living Nutrition.

<u>Nutrients</u>	<u>Cow's Milk</u>	<u>Mother's Milk</u>
water	87%	82%
calories	66.0	77.0
protein, (gm.)	3.5	1.1
fat, (gm.)	3.7	4.0
carbohydrate, (gm.)	4.9	9.5
calcium, (mg)	117	33
phosphorus, (mg)	92	14
iron, (mg)	trace	0.1
sodium, (mg)	50	16
potassium, (mg)	140	51
vitamin A, (I.U.)	150	240
thiamine, (mg)	0.03	0.01
riboflavin, (mg)	0.17	0.04
niacin, (mg)	0.1	0.2
ascorbic acid, (mg)	1	5
vitamin D, (I.U.)	4.0	10.0

tudents investigate the nutritional
of breast versus formula feedings.

nts interview any new mothers they know.

ey breast or bottle feed their infant?

id they choose this method?

hat reasons did they discard the other
97

problems do they have with the method
they chose?

ats place themselves on the continuum
egards to their personal feelings
ot and bottle feeding.

Bottle
Feeder



the advantages and disadvantages of
vs. bottle feeding.

n individual reasons for the positions

Good nutrition of a normal infant can be achieved with
either type of milk. The choice of feeding methods is an
individual decision that should be acceptable to all
members of a family.

Boys may also do this exercise indicating where on the con-
tinuum they would desire their future wife's feelings to be.

Considerations to debate could include:

- o safety of milk supply
- o convenience
- o allergies
- o mother-child relationship
- o feelings of other family members
- o problems of working mothers
- o physical limitations
- o economic aspects
- o personal considerations (calorie intake, effect on figure)
- o immunities
- o social aspects
- o weight control for the infant in later life

6. Have students roleplay an expectant mother and father discussing and making a decision about whether to breast or bottle feed.

TERMINAL OBJECTIVE:

ENABLING OBJECTIVE: *To appraise the nutritional needs of the infant.*

LEARNER ACTIVITIES

1. Discuss:

In many areas of the world (including the United States until around 1920), babies are seldom offered much solid food during the first year of life. In the U.S. however, babies are usually introduced to a variety of solid (strained) foods early in life, actually before they need them nutritionally.

- o Why are Americans anxious to introduce solid foods to an infant?
- o What effect might this practice have on a child's reaction to food variety early in life?
- o What disadvantages can arise from this practice?

2. Have students survey a local supermarket to list all the different kinds of baby food available.

- o Choose several of the foods that could be prepared at home.
- o Determine the cost of home preparation.
- o Compare the costs of the home-prepared and the supermarket baby foods.
- o How many desserts for baby were offered for sale in the supermarket?
- o Read the labels of some of the baby foods.
- o What ingredients do you find that might be of questionable use with babies?

TEACHER INFORMATION

Considerable disagreement exists on the age at which solid foods should be introduced into the diet. (See pages 75-76 of the *Teachers' Manual*.)

Look for nutritional studies that have been done on baby foods. Some sources might include Consumer Reports, Nutrition Today, Journal of Nutrition Education.

3. Explain why it is important that all food consumed by the infant be highly nutritious.
4. Have students develop a day's menu for a one-year-old.
 - o Write specific foods to be included.
 - o What foods would be prepared at home or commercially prepared?
 - o Estimate times for each meal preparation and feeding; what percentage of a parent's day is this?

Babies (to 1 year) need only about 1,000 calories a day, yet as a percentage of body weight, babies need over twice as much of most nutrients as adults.

Meal plan for a one-year-old.

Breakfast

1 c. milk
2-3 tbsp. cereal
2-3 tbsp. strained fruit
teething crackers

Lunch

1 c. milk
2-3 tbsp. vegetables
chopped meat
2-3 tbsp. pudding

Snack

$\frac{1}{2}$ c. milk
teething crackers

Supper

1 c. milk
1 egg
2 tbsp. cereal or potato
2-3 tbsp. cooked fruit
teething crackers

In the human, the brain achieves most of its growth before and slightly after birth. By age 3 years, the brain has reached 80 percent of its adult weight.

5. Review the concept that when an organism is in a stage of rapid growth it is also in a stage of vulnerability to nutritional deficiency.

TOPIC

HUNGER AND MALNUTRITION IN THE UNITED STATES

SUB-TOPICS

MALNUTRITION

NUTRITION OF POOR AMERICANS

PROGRAMS TO IMPROVE NUTRITION

FUTURE FOOD SOURCES

TERMINAL OBJECTIVE

To realize an abundance of food does not insure the nutritional health of a person.

ENABLING OBJECTIVES

The student will be able to:

1. understand that malnutrition includes nutrient excesses as well as nutrient deficiencies.
2. investigate legislation and other events that created awareness and concern for the nutritional status of poor Americans.
3. examine various programs available to the poor including Food Stamps, the Women, Infants and Children Supplemental Food Program and others. Identify the various provisions and limitations of the programs.
4. examine factors that influence the development and production of a new food.

TOPIC: Hunger and Malnutrition in the U.S.

SUB-TOPIC: Malnutrition

TERMINAL OBJECTIVE: To realize an abundance of food does not insure the nutritional health of a person.

ENABLING OBJECTIVE: To understand that malnutrition includes nutrient excesses as well as nutrient deficiencies.

LEARNER ACTIVITIES	TEACHER INFORMATION
1. Students interview grandparents or older people in the community about what life was like during the depression. Report on: - o income - o type of job they held - o availability of food - o ability to buy food. 2. Contact people from various organizations in the community. - o What services do they provide? - o How often do they help? - o In what situations have they provided help?	Food emergencies can be caused by a variety of situations. A depression, unemployment, illness, and other problems may create a situation where money is not available for nutritious food. Natural disasters can leave families unable to obtain food, clothing and shelter. In times when disaster strikes there are agencies which help out families - neighbors, churches, the Red Cross, and depending on circumstances, the U.S. Government. Unfortunately, some countries are unable to grow enough food for the population. Lack of machinery, education, poor land, unfavorable climates and overpopulation contribute to this problem. When short-term problems arise, food can be sent to help. Long-term problems require education and new technology.

3. Have students prepare foods or make a list of foods that could be made from staples usually available in the home.
 - o Are the foods nutritious?
 - o Would the foods satisfy your hunger?
 - o Were the foods appetizing?
 - o Would a variety of nutrients be available?
4. Have students write a description of what they feel it would be like to be malnourished in the U.S.
 - o Did they assume people were hungry and rarely ate?
 - o How did they describe their appearance?
 - o What kinds of jobs did they have?
 - o Did anyone include obesity as part of the problem?
 - o What are some health problems they face?
5. Have students report on hunger and malnutrition. Research the physical, emotional, and psychological effects, as well as related diseases.

This should help students understand what it is like to be without food during a crisis or emergency situation (flood, snowstorm, power shortage, etc.).

It may be necessary to survey ingredients found in student's home and select certain staples that were most frequently available. Using this list, the students must try to make nutritious foods that could be used during an emergency.

Students are likely to exclude obesity as a factor in malnutrition. Being malnourished means lacking essential nutrients for good health. This can mean undernourishment or overnourishment. Often people take in large quantities of food which tend to be cheap, high in calories, and lacking nutrients. (See pages 84-85 in the *Teachers' Manual*.)

See page 60 in the *Teachers' Manual* concerning nutrient deficiencies and excesses.

TERMINAL OBJECTIVE:

ENABLING OBJECTIVE: *To investigate legislation and other events that created awareness and concern for the nutritional status of poor Americans.*

LEARNER ACTIVITIES	TEACHER INFORMATION
1. Have students choose and review a historical document that created public awareness concerning the extent of hunger in the U.S. - o Share basic information with the class. - o Compare these reports with more current information to determine the progress or lack of progress America has made in solving the problems related to hunger and malnutrition. 2. Have students identify how many people are considered "needy," and some common characteristics they may share. - o Contact local welfare department for statistics related to the poor. - o How many persons and what categories of persons receive welfare? - supplemental income (SSI)? - Food Stamps? - Other? - o Compare amount of needy persons to population of community. What is the percentage of needy persons?	Examples of reports of historical significance are: - o <u>Hunger in America</u>. (film) 54 min. color. sd. \$45.00 for one day showing. Available from: Carousel Films, 1501 Broadway, New York, N.Y. 10036. Vendor would like two-week notice before rental date.) - o "Hunger, U.S.A." by Citizens Board of Inquiry. Available from: Beacon Press, 25 Beacon St., Boston, MA 02146. - o <u>The Great Hunger</u> by Cecil Woodham-Smith. Available from Harper & Row, 10 E. 53rd St., New York, N.Y. 10022. - o <u>Still Hungry In America</u> by Robert Coles and Al Clayton. Available from: New American Library, 1633 Broadway, New York, N.Y. 10019. - o Other events are mentioned on pages 82-88 in the <i>Teachers' Manual</i>.

3. Have the students respond to the following value continuum statements by shaking their thumb up and down. The thumb should point up when the student agrees with the statement. The thumb should point down to indicate disagreement. The student may fold his/her arms to represent an "I don't know" attitude or one of neutrality.

- o Most Americans eat a well-balanced diet.
- o Everyone has the right to an adequate amount of food.
- o Hunger and poverty are more predominant in cities other than my own.
- o Hunger affects people's productivity and learning ability.
- o There will always be poor people.
- o Distribution and transportation are problems related to starvation and hunger.
- o Limited availability of food stamp offices and poor office hours make it hard for people to get help when they need it.
- o A lot of people are on welfare and most of them abuse it.
- o Poor people remain poor because they don't want to work.
- o If people are hungry, it is because they don't spend their money wisely.

There are various beliefs about what causes hunger and poverty to exist. These problems have plagued us since the beginning of time. The purpose of this activity is to help students examine their own values and attitudes about hunger and poverty and to realize that there is no single solution to remedy the problem.

Adapted from an activity by:

Katz, Deborah, and Goodwin, Mary T. Food: Where Nutrition, Politics and Culture Meet. Washington, D.C.: Center for Science in the Public Interest, 1976.

Other statements may be included. Have students discuss as a group their feelings toward each statement. Encourage all to participate. At the end of discussion ask the following questions:

- o Which statement was most agreeable?
- o Which did most disagree about?
- o Which ones aroused anger?
- o How could students find out more facts to support or disprove any of these statements?
- o What did the students learn about their own feelings towards hunger and poverty?

TOPIC:

SUB-TOPIC: Programs to Improve Nutrition

TERMINAL OBJECTIVE:

ENABLING OBJECTIVE: *Examine various programs available to the poor including Food Stamps, the Women, Infants and Children Supplemental Food Program, and others. Identify the various provisions and limitations of the program.*

LEARNER ACTIVITIES

1. Invite a representative from your local Social Security office to visit your class.
 - o What is social security?
 - o Who receives social security payments?
 - o Who pays for social security?
 - o What are the current social security payments for a single, retired person? For a couple?
 - o Do these payments seem adequate?
 - o What other sources of income or assistance are there for the elderly?

TEACHER INFORMATION

Social Security is a government program established in 1935 designed to enable individual citizens of this country to lead a personally satisfying life that includes adequate housing, education, recreation, health safeguards, and full employment as well as adequate income. The program provides for contributory old-age and survivors' insurance and unemployment insurance, also approval of, and contributions to, state plans for assistance to the aged, permanently disabled and blind persons, child welfare, and maternal and child health services.

2. Have students pretend they are an elderly person living on a fixed income. Plan a budget that includes both expenditures and revenue.

<u>Revenue</u>	<u>Expenditures</u>
Retirement Pension \$ _____	Food \$ _____
Supplements	Clothing \$ _____
Social Security \$ _____	Housing \$ _____
Interest \$ _____	Health Care \$ _____
Investments \$ _____	Utilities \$ _____
(Real Estate, etc.)	Transportation \$ _____
	Entertainment \$ _____
	Taxes \$ _____
	Gifts \$ _____

- o What conclusion can be made about balancing this budget?

3. Obtain statistics concerning the average cost of meals/per person/per day for poverty level. Have students plan a menu for a week that is nutritionally balanced but within the financial limitations.

- o Can low-income families possibly eat a well-balanced diet with the given amount of money?
- o Was it difficult to plan meals?
- o What are some money saving techniques that you included in your planning?

These statistics should be available through a local Cooperative Extension office or possibly the local welfare department.

It is possible to plan nutritious, attractive meals. Being creative with leftovers, meat products, or cutting down on snack items can save money. Some problems that interfere might be lack of transportation to the grocery store, no grocery delivery, use of small neighborhood stores, and inability to buy large quantities of food at a savings because of the lack of storage space or a freezer.

- o Could the meals be appealing as well as nutritious?

- o What problems did you face in dealing with this?

- o What other problems may interfere with planning meals?

- o What factors, in addition to money, are necessary to assure an adequate diet?

4. Have students plan to interview an elderly person to get a feeling for the type of lifestyle they live.

- o Determine their food habits.
(likes, dislikes, meal patterns, etc.)

- o What revenues do they have?

- o What expenditures must they make?

- o What hobbies do they enjoy?

- o What problems do they face?

Have students share a character sketch of the person they interviewed.

Make a list of common problems faced by the elderly.

Investigate the types of assistance available for the elderly. Visit nutrition sites for elderly citizens 60 years and older. (If you call ahead the students may be welcome to stay for lunch or dinner.)

Instruct learners to explain to the person they interview the purpose of the visit. Be cautious in wording questions. May be best for student to interview someone they know.

Contact the Office for the Aging in your community. They will tell you where the nutrition sites are located.

Survey the elderly persons during the meal.

- o Do you enjoy the 60+ meals?
- o How do you get to the site?
- o Do you learn about nutrition through this program?
- o If so, is it helpful? Why or why not?
- o How did you become aware of this program?

5. Analyze the following data:

<u>Family Income</u>	<u>Dollars Spent For Food At Home/week</u>	<u>Dollars Spent For Food Away From Home/week</u>
Under \$5,000	\$30.00	\$ 5.00
\$5,000- 9,999	\$39.00	\$ 8.00
\$10,000-14,999	\$45.00	\$14.00
\$15,000-19,999	\$53.00	\$18.00
\$20,000 or more	\$60.00	\$25.00

- o Develop a bar or line graph to reflect the above figures.
- o What conclusions can you draw from this information?

This information was obtained from the Nationwide Food Consumption Survey 1977-78 done by the U.S. Department of Agriculture. Copies of the publication are available from the Consumer and Food Economics Institute, Human Nutrition Center, Federal Building, Hyattsville, Maryland 20782.

6. Invite a representative from the county Social Services Department to discuss the kinds of programs conducted at this level relative to meeting the nutritional needs of the people.

- o Discuss the food assistance programs.
- o Discuss the problems that a family on a very limited income may have in obtaining adequate food.
- o Discuss the ways in which food stamps or donated commodities can help.
- o Discuss changes which could be made in the family food programs to make them more useful.

7. Collect news clippings about current legislative and administrative action with regard to changes in the food assistance programs.

8. Hold a debate on: What form of food assistance program would be of most help to poor Americans? Some examples include:

- o A donated foods program or some modification
- o Food Stamp program or some modification
- o A guaranteed annual income with no government food programs.

(See pages 89-91 of the *Teachers' Manual*,)

The class may feel strongly enough about its recommendations to want to put them into a letter to its legislative representatives.

Some students may want to do some historical research on some of these issues. Have them research several of the news magazines for the past year or two to find out what has been happening at the national/international levels.

Food assistance programs are controversial. Some people believe that the programs are necessary and helpful. Others feel that fraud, inefficiency, and waste reduce the effectiveness of these programs. These views and others should be treated fairly in the debate.

9. Discuss the implications and impact that inflation can have on any food assistance program.

- o How can our society best prepare people to become more self-sufficient?
- o What role should government play to make it possible for more poor Americans to become more self-sufficient?

10. Decide on and carry out an activity as a class that will help people in the community who are eligible for food assistance.

11. Interview some elderly people who are attempting to live on a limited income. Design a realistic program to help them in obtaining food stamps, to shop, and to prepare economical, nutritious meals.

12. Discuss the items that can and cannot be purchased with food stamps.

- o Do you agree? Why or why not?
- o What modifications would you suggest? Why?

In some areas, high school students have arranged for transportation for the senior citizens or disabled persons to pick up food stamps and to do their shopping.

The following are items allowed for purchase and those not allowed under the Food Stamp Program:

<u>Allowed</u>	<u>Not Allowed</u>
o food for human consumption	o alcoholic beverages and tobacco
o seed and plants which produce food for consumption by the eligible household	o pet food
	o any nonfood item, e.g. soap, household supplies
	o prepared foods for consumption on the premises
	o deposits on containers

13. Interview a few families that use food stamps to determine their feelings about the program.

- o Are the food stamps difficult to obtain?
- o How do you feel about the allowable and nonallowable items?
- o What types of food can you buy with food stamps that you would otherwise go without?

14. Invite a representative from your local WIC Program to speak to the class about the program.

- o How is the WIC program funded?
- o What are its major objectives?
- o How are the objectives met?
- o Has the program reduced the incidence of related nutrition problems revealed by the National Nutrition Survey?

15. Have students visit or write to their city or county health department to determine what nutrition services are offered.

Caution students to use discretion in their questioning.

The major objective of the WIC program is to lower the risks for nutritional problems and to decrease medical risks for the intended group by a combination of health care and nutritious food through health centers in conjunction with other health care.

To facilitate the question and answer period following the presentation, have students write out their questions for the speaker on a 3x5 index card prior to the presentation. (See page 90 of the *Teachers' Manual*.)

The problems revealed by the survey are:

- o *In pregnant women:* iron deficiency anemia, inadequate weight gain, and very high or very low pre-pregnancy weight.
- o *In infants:* failure to thrive, iron deficiency anemia, and low dietary values of a number of vitamins and minerals.

16. Invite a representative from the Home Economics Division of the local county office of Co-operative Extension to discuss their Expanded Nutrition Education Program.

- o Who is the target group for this program?
- o What are the program's objectives?
- o What functions do the program nutrition aides perform?
- o How are the nutrition aides trained?

17. If EFNEP operates in your county, arrange for your students to make a home visit with the nutrition aide or to attend a workshop presented by him/her.

- o Share experiences with the class.

18. Have students interview a nutrition aide about his/her work.

- o How is s/he generally received by her clients?
- o How are eligible families identified?
- o What type of assistance is most needed by the families?
- o What problems does the aide face?

19. Have students watch the local newspaper for news about the EFNEP program.

Seniors, in particular, might be interested in becoming nutrition aides upon graduation. Other students may have mothers or other relatives who would be interested. (See page 90 of the *Teachers' Manual*.) Please note that the Expanded Nutrition Education Program has been renamed the Expanded Food and Nutrition Education Program (EFNEP).

The nutrition aides are responsible for working with families on a one-to-one basis with support from the County Extension Home Economists.

20. If your school has a school lunch program, interview the school lunch director to find out what the rate of participation is.

- o Who is responsible for planning school menus?
- o What regulations must be adhered to?
- o What problems does the school lunch director deal with?
- o How are lunch prices determined?
- o Are students involved in any planning for the school lunch program?

21. If your school does not participate in the school lunch program, have students undertake to determine why.

- o Interview the school principal for reasons.

22. Arrange for students to tour the school cafeteria with the kitchen manager.

- o Observe the type of equipment needed for quantity food preparation.
- o Who is responsible for scheduling kitchen workers?
- o How is food stored properly?
- o What rules of sanitation and handling must be followed?
- o Whose responsibility is food buying?

Child nutrition programs help to support services for children in public and nonpublic schools, residential child care institutions, child care centers, settlement houses, summer camps and recreation centers.

Perhaps time can be arranged for students to assist in the kitchen and cafeteria.

23. Poll the class for their feelings about the school lunch program.

- o Compile the results of the survey.
- o Send a report of survey results to the school lunch director, the school principals, parents, etc.

24. Students can investigate the possibilities of forming a school nutrition committee. Some functions of the group would include:

- o input for planning school menus
- o tasting panels for trying new foods to be used in the cafeteria
- o evaluation of foods now being served
- o improving the atmosphere of the cafeteria
- o decorating the cafeteria for seasons and holidays
- o student involvement in maintaining order and discipline during lunch periods

25. Arrange for a panel to debate:

Should the government provide free school breakfasts and/or lunches for all children in public schools? Why and why not?

An example of a school lunch survey can be found in Appendix B.

School nutrition committees can involve students, parents, teachers, administration, and food service personnel. Permission for forming such a group will involve the school principals, school lunch director, student council, etc. If the functions of such a group are handled responsibly, participation in the school lunch program could increase appreciably.

Suggestions for panel participants: parents, school administrators, school lunch personnel, school nurse, nutrition teacher, health teacher, students.

26. Have students choose one of the child nutrition programs to research:

- .Child Care Food Program
- .Summer Food Service Program for Children
- .Special Milk Program
- .Nonfood Assistance Program

- o Briefly report findings to class.

27. Poll the class to determine their breakfast habits. Compile the results of the survey.

- o Compare the results of the class to the findings of other breakfast studies. Are there significant differences?
- o Analyze the adequacy of the breakfasts of the persons in the class.
- o Would a school breakfast program encourage more students to eat a nutritious breakfast?

An alternative activity might be to divide the class into four committees with each committee researching one program.

A sample breakfast survey can be found in Appendix A.

Some facts about breakfasts of Americans are:

- o Approximately 75 percent of all American families do not eat breakfast together.
- o About 33 percent of wives (mothers) and 25 percent of husbands (fathers) eat alone.
- o About 10 percent of all men do not eat breakfast at all.
- o In 25 percent of all homes, one child eats alone without parental supervision.
- o About 6 percent of all children go to school without breakfast.
- o The average person spends less than 20 minutes at the breakfast table.
- o In 1 out of 6 families, the homemaker is just getting up when the first person begins breakfast.
- o Less than 20 percent of all family members eat a breakfast that the homemaker considers nutritionally complete; for children the figure is 60 percent.
- o On weekends, 40 percent of homemakers serve the kind of breakfast they think is nutritionally complete.

28. Using the requirements for school lunch patterns and the results of a survey of the student body or class, design a week's or month's worth of school menus which would have appeal to teenagers.

Students could obtain records of the school cafeteria lunch menus or keep a running record themselves. The cafeteria menus can then be assessed according to their appeal and nutritional value. Students might wish to approach the school dietitian or administrator with suggestions for changes in the menu plans based on the results of their survey.

TOPIC:

SUB-TOPIC: Future Food Sources

TERMINAL OBJECTIVE:

ENABLING OBJECTIVE: *Examine factors that influence the development and production of a new food.*

LEARNER ACTIVITIES	TEACHER INFORMATION
1. Have students draw a pyramid or triangle with 7 spaces. At the top write least important and at the bottom write most important.  LEAST IMPORTANT MOST IMPORTANT - o Explain that research has been done to improve potatoes. - o Ask for volunteers from the class. Two will represent nutritionists who want to improve the nutritive value of the potato. Two will represent agribusiness men who want to produce more potatoes per crop. Two will represent transporters who want the crops to "travel better." Two will be merchants who are eager to increase their sales. Explain to the students that you are going to read a list of new improvements for the potato to them. The students must rank the improvements on the pyramid from the most important to least important according to the type of person they represent. Use the key words from the improvement statements on the pyramid. None of the statements can be eliminated even if they seem unimportant.	Environmental factors and technology affect nutritional health by influencing what foods are available, the quality of those foods, and what foods the individual chooses to eat. (See pages 77 and 78 in the <i>Teachers' Manual</i> for more factors.) Adapted from an activity by: Katz, Deborah, and Goodwin, Mary T. <u>Food: Where Nutrition Politics and Culture Meet.</u> Washington, D.C.: Center for Science in the Public Interest 1976.

o The list of new improvements:

- .A potato designed with more flavor for use in salads, as a vegetable, or in soups. (FLAVOR)
- .A more nutritious potato that contains more vitamins and minerals. (NUTRITIOUS)
- .A potato that can endure any temperatures so it can be grown anywhere or anytime of the year. (ENDURANCE)
- .A potato that grows more quickly so that more can be produced. (QUICK)
- .A thinner skinned potato to get more for your money. (BETTER BUY)
- .A firmer potato so it won't bruise easily. (FIRMER)
- .A lighter weight potato so you could carry them easier. (LIGHTER)
- .A cleaner potato that doesn't need to be washed. (CLEANER)

Compare the rankings of the class. Ask the students who were not selected as volunteers to discuss their ideas. Have the volunteers share their responses and ideas. Were there any differences in opinion to why or why not?

2. Individuals or small groups in the class can investigate and report on one possible new food product from the following list:

- o fish protein concentrate
- o improved genetic quality of existing grains
- o yeast

Universities, the Food and Agricultural Organization, and the World Health Organization of the United Nations have all been interested in research programs to develop protein sources for use in areas where protein is presently inadequate in the diet.

o oilseed flours (cotton-seed, peanut, soy flours). (Special blends of oil-seed flours and other substances including vitamins and minerals have been tried for child feeding in some areas - Incaparina in Central and South America, Multi-purpose Food - MPF - in India, Laubina in the Near East.)

o soy protein meat analogs

o algae

3. Have the students write to organizations involved in food research requesting recipes using the food products such as fish/protein concentrate, soy protein meat analogs, algae, etc. developed to provide more high quality protein sources.

o Have students choose and prepare some of the recipes for the class to sample.

o Write an evaluation of your feelings about the recipes.

4. Discuss what type of companies do research on improving food.

o What are their priorities?

o Do you think ideas are overlooked or rejected by the people who make the decisions? Why?

o Should more money and attention be given for research?

Health food stores should supply many of these new products.

5. Have students read the chapter "Will Cows Give Chocolate Milk In the Future?" Discuss the article.
- o Are these ideas realistic?
 - o Do we use any of these methods now?
 - o What major changes have occurred in the past 50 years?
6. Have students draw a picture of a food they think would be helpful in the future. Share pictures and descriptions. Discuss taste and preparation.
- o Where does the food come from?
 - o Is it synthetic or grown?
 - o What form is it available in--liquid, pill, etc.
 - o What nutrients does it contain?
 - o How might it help solve the problem of malnutrition and hunger which we face today?

This chapter is found in What's To Eat? And Other Questions Kids Ask About Food The United States Department of Agriculture Yearbook. See pages 122-131. Available from: Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402. Stock number 001-000-04041-3.

New research about food has caused people to change some of their food choices. Cholesterol and fat have caused people to include more plant foods in their diet.

In the future, foods may be primarily synthetic. New research is making foods from the ocean as well as soy products available. Research today will contribute to the foods of tomorrow.

TOPIC	CAREERS IN NUTRITION
SUB-TOPIC	JOB DESCRIPTIONS AND REQUIREMENTS
TERMINAL OBJECTIVE	To identify possible career choices in the field of nutrition.
ENABLING OBJECTIVE	The student will be able to: 1. Describe and categorize various occupations in nutrition and identify educational requirements necessary for each.

TERMINAL OBJECTIVE: *To identify possible career choices in the field of nutrition*

ENABLING OBJECTIVE: *Describe and categorize various occupations in nutrition and identify educational requirements necessary for each.*

LEARNER ACTIVITIES	TEACHER INFORMATION
1. Choose a specific career in one area of nutrition. Each student should research that career and write information on index cards. Some information to include might be: - o job description - o educational requirements - o salary - o benefits - o advantages of job - o disadvantages of job - o number of working hours per week Students should share information with the class and place it in a file box marked, "Careers In Nutrition," to keep as a reference for future use. 2. Invite a school dietitian to class for an interview. Have prepared questions concerning this career.	Some categories of careers available in nutrition are: - o Dietitians - o Restaurants and Food Service - o Bakers - o Food Processing - o Food Distribution - o Home Economist - o Hospitals - o Research Dietitians can work in hospitals and schools as well as many other institutions. They use their knowledge to plan diets, manage kitchens and help teach people about special dietary requirements.

3. Simulate a cafeteria or restaurant experience. Have some students volunteer to be the owner, chef, waiter or waitress, dishwasher, manager. The rest of the class can be customers. The volunteers can perform actual functions of the roles they are playing.

- o Chef may work with owner or manager to plan menu.
- o Manager oversees employees and finances.
- o Chef prepares meals.
- o Waiters or waitresses set up tables and serve the customers.
- o Dishwasher cleans dishes.

After the previous experience has been carried out, discuss the following:

- o What problems did you encounter?
- o Did you enjoy your job? Explain.
- o What was attractive about the job?
- o What was unattractive about it?
- o Were you successful at your job?
- o Did you learn anything new about the job?

4. Invite a baker or cake decorator or caterer to come to class. Ask them to do a demonstration of some foods they prepare. Time can be allowed at the end of class for questions related to their job.

Contact the home economics teacher in your school. With permission, it is possible to use the room and equipment to actually prepare the food and serve it. This gives the students an actual "feel" for the job they are performing.

There are various types of bakers as well as various types of bakeries.*

*This area offers careers for self-employment as well as opportunities to work for someone else.

5. Have students ask a guidance counselor to give them some information concerning hospital careers. Have students pretend they are hiring people to work for them in a hospital related to nutrition. Write up some ads that could be used in the classified section of the newspaper. Include:

- o salary
- o educational requirements
- o working conditions
- o description of job
- o skills or training needed

6. Write to a college that offers degrees in Home Economics. Share information with the class on the following:

- o What kind of degrees are offered?
- o What are the different programs available?
- o What types of jobs can you get when you graduate?
- o How long must you go to school?

There are many jobs available in hospitals relating to nutrition - dietician, dietician's aides, managers, chefs, aides to distribute food, etc.

Some schools offering degrees in Home Economics are:

- o The State of New York at Plattsburgh
- o The State of New York at Oneonta
- o The State of New York at Buffalo
- o Cornell University
- o Syracuse University.

Another reference is:

- o Your Future As A Home Economist by Jeanne Paris. (Arco-Rosen Career Guidance Series). Available from Arco-Rosen, 219 Park Avenue South, New York, New York 10003. 1976.

7. Students can write to some of the leading food processing companies to determine what types of careers are available. Report to class.

8. Students can interview workers involved in food distribution. Include a wide range of workers. Ask about:

- o likes and dislikes about the job
- o advancement opportunities
- o salary
- o training necessary

After gathering information, prepare a bulletin board based on the findings.

Some companies are:

- o The Quaker Oats Co., Chicago, Ill. 60654
- o General Foods, White Plains, N.Y. 10605
- o Nabisco, East Hanover, N.J. 07936
- o Land O'Lakes, Minneapolis, Minn. 55412
- o Swift and Company, Chicago, Ill. 60604
- o Hunt-Wesson Foods Inc., Fullerton, Calif. 92634
- o Carnation Company, Los Angeles, Calif. 90036
- o General Mills, Box 74, Minneapolis, Minn. 55440
- o Kelloggs, Battle Creek, Mich. 49016

Others may be found on the labels of various food products.

Some food distribution plants include: canning and freezing plants, commercial bakers, large commercial factories, meat packing and processing plants.

9. Have students organize a contest for the best recipe. Students can start with a basic recipe and make adjustments in the amounts or add new ingredients to try to improve it. Students should write a brief paragraph about what changes were made and why. Judges can be selected to choose a winner.
10. Students can prepare a crossword puzzle using information about the careers that were researched. This idea can be incorporated into a jeopardy game as well.

Food technologists work in food processing. They try to develop new products as well as enhance old ones, study the safety of ingredients, and help solve problems of waste.

These games can help students focus on various careers. They can identify the advantages and disadvantages of each. Students may identify talents they have that would be beneficial in any of the careers.

APPENDIX A

A SUGGESTED BREAKFAST SURVEY

DID YOU HAVE BREAKFAST THIS MORNING?

Yes _____ No _____

DO YOU USUALLY EAT BREAKFAST?

Yes _____ No _____

IF YOU DO NOT EAT BREAKFAST REGULARLY, WHY IS THIS?
(Circle one number)

- | | |
|----------------------------------|--------------------------|
| 1. Not hungry | 5. Trying to lose weight |
| 2. Not enough time | 6. Don't want to get fat |
| 3. Breakfast not prepared for me | 7. Other reason _____ |
| 4. Don't like foods served | |

WHICH OF THE FOLLOWING FOODS WERE INCLUDED IN YOUR BREAKFAST THIS MORNING?
(Check the foods you ate)

- | | |
|---|--|
| ☐ Fruit or juice | ☐ Eggs |
| ☐ Cereal with milk | ☐ Meat |
| ☐ Bread, toast, rolls, other | ☐ Pancakes or waffles |
| ☐ Pop-Tarts, pastries, doughnuts
or similar product | ☐ Coffee or tea |
| ☐ Margarine, butter or other spreads | ☐ Other beverage? _____ |
| ☐ Milk or cocoa | ☐ Other foods? _____ |

A SUGGESTED SCHOOL LUNCH SURVEY

CIRCLE THE SELECTION WHICH APPLIES TO YOU:

GRADE IN SCHOOL 10 11 12

YOUR AGE 14 15 16 17 18 19

CHECK (✓) THE ONE WHICH MOST OFTEN APPLIES TO YOU

- ☐ I usually don't eat lunch
- ☐ I usually bring my lunch to school
- ☐ I usually buy the regular school lunch
- ☐ I usually buy snack-type foods in the cafeteria
- ☐ I usually eat lunch downtown
- ☐ I usually go home for lunch
- ☐ I usually buy part of the school lunch
- ☐ I buy lunch sometimes and bring lunch sometimes, depending upon what is served

OF THE FOLLOWING FOOD ITEMS WHICH ARE SERVED IN OUR CAFETERIA:

1. Place an X beside those you strongly like.
2. Place an 0 beside those you strongly dislike.

- | | |
|--|---|
| ☐ hamburgers | ☐ submarine sandwiches |
| ☐ chili | ☐ spaghetti |
| ☐ sloppy-Joes | ☐ fish sandwich |
| ☐ chicken in gravy on bread | ☐ pizza |
| ☐ hot dogs | ☐ chicken |

OF THE FOLLOWING FOODS, CHECK THOSE WHICH YOU WOULD LIKE TO HAVE OFFERED IN THE CAFETERIA

- | | | |
|--|--|---------------------------------------|
| ☐ fresh fruit | ☐ baked goods | ☐ lasagna |
| ☐ milkshakes | ☐ mashed potatoes | ☐ granola bars |
| ☐ macaroni and cheese | ☐ tuna noodle casserole | ☐ French fries |
| ☐ meatloaf | ☐ potato salad | ☐ Other _____ |
| ☐ macaroni salad | | |

READ THE FOLLOWING SENTENCES AND CHECK (✓) EITHER YES OR NO.

Yes

No

1. Do you receive enough food when you buy the regular school lunch?		
2. If a salad bar were provided, where you could make your own salad, would you buy it?		
3. Do you think there is enough variety in the kinds of sandwiches served?		
4. Are you satisfied with the way the vegetables are prepared?		
5. Have you been served sandwiches which did not seem fresh?		
6. Are you satisfied with the amount of filling in the sandwiches?		
7. Are the hot foods served hot to you?		
8. Would you like additional ingredients in the salad served with the lunch?		
9. Would you like to have a choice of salad dressings?		
10. Is the food attractively served on the plate?		
11. Do you think that the atmosphere of the cafeteria is such that you can enjoy your lunch?		
12. Would you like to have the cafeteria decorated, such as for the seasons and holidays?		